# THE IRON TRADE REVIEW

VOLUME XXXV CLEVELAND, OHIO, NOVEMBER 13, 1902 NUMBER 46

## THE WEEK IN IRON CIRCLES.

### THE MARKET AT LARGE.

The announcement of new discounts on merchant pipe by the National Tube Co completes for the present, at least, the revisions of prices in lines in which competition has been most in evidence in recent weeks. There is a disposition to make much of the recent reductions, as though they were an index of a pronounced change in the iron trade. Money market conditions, rather than the facts about the demand for iron and steel, seem to have colored some recent expressions. As long as foreign iron is coming into the country (and this movement promises to continue for some months) to supply demands which domestic works cannot take care of, the turning point cannot be said to have been reached. The making of lower prices in 1900, after the boom of 1899, led to two years of splendid buying. There is relatively little inflation of prices today and hence the dangers of boom conditions do not exist. Orders now on the books of steel mills considerably exceed those booked at the corresponding date last year and the tonnage of orders closed is still exceeding the tonnage of shipments. What is noteworthy in the present situation is that the steel corporation is not so complacent as heretofore, under the diversion of business in the lighter materials to competitors that have come into the race with finishing mills, but with no foundation in steel, pig iron, ore and coal. The troubles of the furnaces and steel works continue. There is no expectation on the part of those who understand the situation, that the winter will bring anything but an aggravation of existing difficulties. Furnaces in the Mahoning and Shenango Valleys to the number of 20 were banked early this week and some of the Carnegie Steel Co.'s stacks have suffered from an insufficient supply of coke, though in the Connellsville region alone more than 300,000 tons of coke waits for locomotives and cars. Pig iron buying by steel works is naturally light, with furnaces weeks behind on old contracts. A sale is reported of 4,000 tons of Bessemer iron at $21 Valley furnace, for delivery in the second quarter of next year. Southern furnaces are faring well in regularity of operation, as compared with those in the North, and spot iron is lower, being now obtainable, though in no great quantities, at prices close to those asked for shipments in 1903. Very little business is done, however, either in Southern or Northern irons, for the second half of 1903. Prices of furnaces going after this business are about $21 at Northern furnace for No. 2 foundry and $18.50 at Southern furnace. Steel is dull in evident anticipation of lower prices. The decision that importers must name the prevailing price abroad in valuing their purchases for import duty, has been sustained. For the present the duty of $6.72 stands, but the trade has been unsettled and developments will now be awaited. Some large steel manufacturers have been buyers of domestic open-hearth steel for Pittsburg delivery recently and important extensions in open-hearth capacity are planned. The strength of the market in heavy finished materials is maintained and there is no evidence of the strain of competition that appears in sheets, tin plates, wire and merchant pipe. In the Chicago district some good orders for standard rails were placed last week and there are several considerable buyers that have not yet covered their needs for next yar. Structural orders were increased by 10,000 tons in the Pittsburg district. In the East, however, the building of tall structures is not at so rapid a pace as last year and the early part of 1902. Bar iron shows weakness in both Western and Central Western markets, 1.70c Pittsburg having been done, while in the Chicago district there have been cuts on desirable orders to 1.75c. The new prices on merchant pipe practically restore the price of last winter on iron, while steel is put relatively lower than heretofore, the new prices being based upon the cost of steel and iron pipe respectively.

### PITTSBURG.

OFFICE OF *The Iron Trade Review*,
429 PARK BUILDING, NOV. 12.

The National Tube Co. announced today a reduction in the price of merchant pipe, which goes into effect immediately. For the past three or four months, independent producers of this product have been making concessions to secure business but no change in the discount list was made by the largest producer, the latter believing that the situation would adjust itself and that the proper differentials would again be made between the price of the raw material and the finished product on business taken by the independent producers. This resulted in diverting considerable business to independent channels. Reports that the demand has fallen off are without foundation as the demand and production of all kinds of pipe thus far this year are greater than ever before. In explanation of the change in the price of merchant pipe, the leading interest calls attention to the fact that the winter season prices of last year on iron pipe were practically the same as the revised schedule noted elsewhere in this report; that the demand which set in about March 1 this year was so enormous that it was found desirable to raise prices. The company is now able, on account of slackening demand, which is usual at this time of the year, to get back to the values of last winter, and it considers the time opportune to institute the policy of quoting iron and steel on the basis of the cost of each, rather than, as heretofore, on the basis of a fixed differential. This will account for the fact that steel pipe is now quoted at somewhat lower rates than were current last winter.

In other finished lines, such as tin plate and sheets, the demand is not nearly so large as it was expected to be, following such sweeping reductions as have recently been made. In both lines, large stocks were accumulated both by the corporation and independent mills and until this is worked off there will be no general resumption at the idle mills. Whether the independent tin plate manufacturers will be in position to meet the new prices of the American Tin Plate Co. after Dec. 1 remains to be seen. The difference between the cost of production and the selling basis is not very great, the present price of billets and tin bars taken into consideration, and unless a plant is equipped with all modern labor saving devices, well located and skillfully managed, it will be impossible to operate except at a loss. So far as can be learned at present, the independent mills, with few exceptions, will meet the lower basis made by the American Tin Plate Co. and will

attempt to operate on this basis. Should raw material decline several dollars a ton, it is almost a certainty that all the independent mills, regardless of their management, will be enabled to meet the cut without a loss.

The coke situation continues to curtail pig iron production in the Mahoning and Shenango Valleys and yesterday about twenty furnaces were banked in these two districts. Some of the Carnegie furnaces in this district have also been compelled to bank for brief periods during the week and the situation is constantly growing worse. Many cars, formerly used in the coke trade, have been taken east to help out shipments of anthracite coal, and not only are the furnaces troubled on account of the scarcity of coke due to the small car supply, but it is feared that the ore shipments from the Lake Erie ports will be greatly interfered with. Shipments of ore during the past week have fallen off to a great extent, one large furnace interest having five large cargoes tied up at Cleveland, awaiting cars for shipment.

The steel billet situation remains practically unchanged. Domestic Bessemer billets are not in very great demand, but the market for open-hearth billets continues strong, and while nearly all of the large steel companies have figured as purchasers of these billets from time to time during the past year, it is interesting to note that the United States Steel Corporation has recently been a purchaser of open-hearth billets for Pittsburg shipment from an independent mill. The open-hearth capacity of the mills of the Carnegie Steel Co. is larger than that of any single steel plant in the world, but for some time it has not been great enough to supply the demands of the finishing departments and for this reason extensive additions are being considered to the open-hearth department of this company.

PIG IRON.—Transactions in all grades of pig iron continue to be limited to small lots for early shipment. Very little Northern foundry iron is to be had for prompt delivery and we note the sale of 700 tons of Southern No. 2, for immediate shipment, at $28.15, delivered, Pittsburg. While this is an abnormal price, nevertheless the foundry that purchased the iron preferred paying this price to experimenting with imported Scotch iron which is being offered in this market at $24 to $25 per ton for spot. Bessemer iron for early delivery is held at $23.50 to $24, delivered Pittsburg, and for shipment during the first half of next year $21 to $21.50, Valley Furnace, is asked. We note the sale of 4,000 tons for delivery through the second quarter of next year at the former price. We also note the sale of a small lot of forge iron for early delivery at $21.75, Pittsburg. No further purchases of foreign Bessemer iron, although anticipated, have yet been made, and nearly all the large consumers, who anticipate a shortage for their steel plants unless deliveries on specifications become better, are waiting for developments during the next two months before placing additional orders with foreign producers. We make the following quotations:

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|---|---|
| Bessemer, Valley | $21 50 to 23 00 |
| Bessemer, Pittsburg | 22 25 to 23 75 |
| No. 1 Foundry | 24 00 to 25 00 |
| No. 2 Foundry | 23 00 to 23 50 |
| No. 2 Foundry | 23 50 to 24 00 |
| Gray Forge, Pittsburg | 21 25 to 21 50 |
| Chilled Basic, Valley | 21 00 to 21 50 |
| Chilled Basic, Pittsburg | 21 75 to 22 25 |

STEEL.—Little demand exists for Bessemer steel billets, as consumers evidently believe that somewhat better quotations will be made shortly, although this seems improbable with Bessemer iron ruling at the present price. Bessemer billets are held at $28 to $28.50 at either Youngstown or Pittsburg. Open-hearth billets are quoted $30 to $31 for ordinary specifications and at $32 to $33 for high carbon.

FERRO-MANGANESE.—English producers are offering their product at $50, delivered Pittsburg, which is $1.25 below the price at which German manufacturers can offer the product. No domestic ferror is being offered in this market.

SPELTER.—Carload lots, prime western grades are being offered in this market at 5.27½c to 5.30c, while smaller lots command correspondingly higher prices according to the quantity.

MUCK BAR.—The market continues quiet, no sales of importance having been reported. Neutral bars are held at $35.50 to $36, while Eastern mills are offering their product in this district at $33.50 to $34.

SKELP.—There is no change in the skelp situation. iron skelp being held at 1.95c to 2c and steel at 2.05c to 2.10c.

RAILS AND TRACK MATERIAL.—Demand for light section rails continues strong and high prices continue to be paid for spot shipments. In standard section rails further business has been done, particularly for Western delivery. We make the following quotations: Standard sections, 50 pounds and over, in lots of 200 tons and over, $28; car lots and less than 200 tons, $30; less than car lots, $32; light rails, 8 pounds, $44; 12 pounds, $43; 16 pounds, $41; 20 pounds, $40; 25 to 40 pounds, $38 to $39. Track materials: Spikes, 2.15c to 2.25c; track bolts, square heads, 2.50c; hexagon heads, 2.65c; fish plates, 1.60c.

PLATES.—The plate situation continues strong and further heavy business is expected from the lake shipbuilders. If the orders for new steamships are placed by the Pittsburg Steamship Co., as talked of, it would mean the giving of orders for plates to the United States Steel Corporation mills for upwards of 35,000 tons. On current business 1.85c is quoted, while on very large orders for delivery next year agreed quotations, which are as follows, prevail: Tank plates, ¼-inch thick and up to 100 inches in width, 1.60c at mill, Pittsburg; flange and boiler steel, 1.70c; marine, ordinary fire-box, A. B. M. A. specifications, 1.80c; still bottom steel, 1.80c; locomotive firebox, not less than 2.10c, and it ranges in price to 3c. Plate more than 100 inches wide, 5c extra 100 pounds. Plate 3-16 of an inch in thickness, $2 extra; gauges Nos. 7 and 8, $3 extra. These quotations are based on carload lots, with 5c extra a hundred pounds for less than carload lots. Terms, net cash, in 30 days.

BARS.—Demand for large rounds is very strong and as high as 2c has been offered during the week for small lots for prompt shipment. On the other hand, the capacity of mills for rolling rounds up to two inches is large, the demand not being sufficient to keep up with the production. Current business in bars is very satisfactory, while specifications on contracts are being made more freely. We make the following quotations: Bessemer steel bars, 1.60c; open-hearth, 1.70c; plow beams and cultivator beams, 1.60c, net; channels, angles, zees and tees, Bessemer under 3 inches, 1.70c; over 3 inches, 1.80c; bar iron, 1.80c, Pittsburg, with full freight added to point of delivery. Hoops and bands are quoted at 1.90c, full extras, in 250-ton lots and over, and 2c in less than 250-ton lots; refined iron bars, 2.25c and upwards.

STRUCTURAL MATERIAL.—A number of large structural fitting concerns placed contracts during the week aggregating 10,000 tons for delivery next year. One large local producer already has its books filled up to July 1,1903, while structural mills in other sections of the country report that they are filled up to May. Agreement quotations are as follows: Beams and channels, 3 to 15 inches, 1.60c; 18 to 24 inches, 1.70c; tees, 1.65c; zees, 1.60c; angles from 3 to 6 inches, 1.60c; universal mill plates, 1.60c.

PIPES AND TUBES.—The National Tube Co. today announced a new list on merchant pipe which goes into effect immediately. Quotations in carload lots, plus freight to destination, are as follows:

MERCHANT PIPE.

| | Steel | | Guaranteed Wrought Iron | |
|---|---|---|---|---|
| | Black. Percent. | Galv. Percent. | Black. Percent. | Galv. Percent. |
| ⅛, ¼ and ⅜ inch | 68 | 58 | 65 | 55 |
| ½ inch | 70 | 60 | 67 | 57 |
| ¾ to 6 inch | 75 | 65 | 72 | 62 |
| 7 to 12 inch | 73 | 63 | 70 | 60 |
| *Plugged and Reamed* | | | | |
| 1 to 4 inch | 73 | 63 | 70 | 60 |
| *Cut 3 to 6 feet* | | | | |
| ⅛, ¼ and ⅜ inch | 63 | 52 | 60 | 49 |
| ½ inch | 65 | 54 | 62 | 51 |
| ¾ to 6 inch | 71 | 60 | 68 | 57 |
| 7 to 12 inch | 69 | 57 | 65 | 54 |
| *Cut 6 feet and longer* | | | | |
| ⅛, ¼ and ⅜ inch | 64 | 53 | 61 | 50 |
| ½ inch | 66 | 55 | 63 | 52 |
| ¾ to 6 inch | 72 | 61 | 69 | 58 |
| 7 to 12 inch | 70 | 58 | 66 | 55 |
| *Extra Strong Plain End* | | | | |
| ⅛ to 8 inch | 69 | 59 | 65 | 55 |
| Threads only—Same as Plain End, plus 1¼ percent net. | | | | |
| Threads and Couplings—Same as Plain End, plus 2½ percent net. | | | | |
| *Double Extra Strong Plain End* | | | | |
| ½ to 8 inch | 61 | 51 | 57 | 47 |
| Threads only—Same as Plain End, plus 2 percent net. | | | | |
| Threads and Couplings—Same as Plain End, plus 3 percent net. | | | | |

NOTE: Orders for less than carload will be charged at 12½ percent advance. Extra and Double Extra Strong Cut Lengths, lower random discounts by 10 percent net for 6 feet and longer, and 15 percent net for 3 to 6 feet.

BOILER TUBES.

*Steel*

| | Percent |
|---|---|
| 1 to 1½ inches | 45 |
| 2¼ to 5 inches | 62½ |
| 1¾ to 2¼ and 6 to 13 inches | 52½ |

*Iron.*

| | Percent |
|---|---|
| 1 to 1½ inches | 36½ |
| 2¼ to 5 inches | 45½ |
| 1¾ to 2¼ and 6 to 13 inches | 35½ |

CASING.

| | S. and S. Percent. |
|---|---|
| 2 to 3 inches | 58 |
| 3¼ to 4 inches | 60 |
| 4¼ to 12½ inches | 63 |

SHEETS.—While the demand for sheets has improved considerably it is not at present sufficiently large to compel the operation of additional mill capacity. The stocks of nearly all the mills were large when the recent reduction was announced and until these are worked off few if any additional mills will be placed in operation. Our quotations to jobbers in 500 bundle lots and over are as follows: No. 28, 2.75c; No. 27, 2.65c; No. 26, 2.55c; Nos. 22 and 24, 2.45c; Nos. 18 and 20, 2.35c; Nos. 14 and 16, 2.25c; Nos. 10 and 12, 2.10c to 2.15c. Galvanized: No. 16, 2.60c; No. 18, 2.85c; No. 26, 3.35c; No. 27, 3.60c; No. 28, 3.85c; No. 29, 4.35c; No. 30, 4.50c.

MERCHANT STEEL.—Demand continues good for all lines and considerable new business is now being placed in shafting. We make the following quotations: Turned cold rolled and ground shafting is held at 47 off in carload lots and 42 percent off in less than carload lots; tire steel, 2.15c to 2.25c; spring steel, 2.25c to 2.35c; toe calk, 2.30c to 2.40c. The following differentials maintain: Less than 2,000 pounds of a size and not less than 1,000 pounds, 10 cents advance; less than 1,000 pounds of a size, 30 cents advance. Tool steel is quoted 7 cents and upwards, according to the grade.

WIRE AND WIRE NAILS.—While the demand for wire and wire nails is large, there is not sufficient business being placed to insure the operation of all the idle mills. We quote as follows: Wire nails, carload lots, f. o. b. cars, Pittsburg, $1.85 to $1.90; less than carload lots, $1.95 to $2; plain wire, carload lots, $1.75 to $1.80; less than carload lots, $1.85 to $1.90; barb wire, carload lots, $2.15 to $2.20; less than carload lots, $2.25 to $2.30; staples, carload lots, $2.05, and less than carload lots, $2.15. Galvanizing, 30 cents extra. Cut nails are quoted as follows: Carload lots, $2.05, and less than carload lots, $2.10 f. o. b. Pittsburg, plus freight to point of destination, terms 60 days, less 2 percent off in 10 days.

OLD MATERIAL.—A fair demand exists, but dealers have large stocks on hand and consumers believe that lower prices will prevail when those are to be worked off. We quote for gross tons: Heavy melting stock, $21 to $21.25; low phosphorus melting stock, $23.50 to $24; steel rails, $21 to $21.25; re-rolling rails, $22.50 to $23; No. 1 cast scrap, $19 to $19.50; borings and turnings, $11 to $11.50; busheling scrap, $16 to $16.50.

COKE.—Further contracts for coke for delivery next year have been placed both by large furnace and foundry interests during the week. One large contract for furnace coke was placed at $3.50 at the ovens, while other contracts have been made at $4 to $4.25. That there will be a scarcity of foundry coke is already apparent and many foundries will be compelled to use furnace coke for at least a portion of next year, as there is not sufficient foundry coke now in sight to supply the demand. On contracts for the first six months of next year, the latter is selling at prices ranging from $4.50 to $5. The Connellsville *Courier* estimates the production for the week ending Saturday, Nov. 1, of the Upper Connellsville region, at 254,737 tons, and that of the lower region at 48,050 tons.

## CHICAGO.

OFFICE OF *The Iron Trade Review*,
519 MONADNOCK BLOCK Nov. 11.

Little change is apparent in local conditions. The inability of railroads to provide sufficient cars and locomotives for the hauling of freight, together with the shortage in the coke supply, is assuming graver proportions every week and seriously crippling the iron and steel industry in this section. No furnaces in this district are working to their full capacity, all of them banking one or two days and sometimes more, each week while accumulating a supply of coke to enable them to keep in blast the balance of the week. This partial suspension of production, seriously curtailing the shipments of contract iron, has created an insistent demand for spot iron, which cannot wholly be met in this market. The failure of railroads to cope with the present traffic conditions may be better realized by the statement of a conservative railroad official of this city, that the demand for cars is fully 50,000 in excess of the supply, with a corresponding dearth of locomotives. Southern furnaces which are not affected by the coke shortage, and which, as a general rule, are making prompt shipments on their contracts, are complaining loudly of the side-tracking and delay in moving their cars as soon as these get north of the Ohio river; but protests have little effect since the railroads are overwhelmed with similar complaints. Carloads of iron shipped from the South as far back as August and September are not yet delivered, nor can any promise be secured as to when they will reach their destination. A salesman who recently returned from a trip through the South reports that the railroad tracks from Chattanooga to Cincinnati are full of cars loaded with pig iron, waiting for locomotives to haul them away, while many furnaces have accumulated stocks of pig iron in their yards from the same cause.

Buying in finished iron and steel during the week has been fairly active. Sheets are holding firm at present quotations, though the demand is largely for the heavier gauges. There has been a further weakening in bar iron, and reports are current of sales at as low as 1.75c. Specifications are being received quite freely from agricultural implement manufacturers and car builders for both iron and steel bars, but new business is not of large proportions. The heavy demand for plates continues, sales aggregating 15,000 tons having been made during the past week. A good tonnage has been booked in heavy and light rails by the local mills, one order for 20,000 tons of standard sections for delivery late next year coming from a Western railroad. Scrap iron has suffered another reduction, principally on material used in bar mills, as a result of the withdrawal from the market of a number of large local consumers.

PIG IRON.—Little disposition has been manifested by foundrymen during the week to buy for their needs in the last half of next year, notwithstanding that all the furnaces have opened their books for this period. Some sales have been made calling for deliveries commencing in the second quarter and extending into the third quarter, though these do not represent a large tonnage. Few foundrymen are receiving their full quotas on contracts placed; and melters are giving more attention at the present time to securing a supply of iron for their immediate needs than to contracting for the future. The total tonnage for next year's delivery placed in the week will scarcely exceed 10,000 tons, some sellers not having made a sale for this delivery. There is an insistent demand for iron for delivery this year, and numerous sales have been made ranging from carload lots to 1,000 tons. One seller's price for spot iron is no criterion for another's, each transaction having to stand, as it were, on its own bottom. Sales of No. 1 foundry and soft have been made at $27.65; No. 2 foundry and soft at $27.15; No. 3 foundry, $26.65; 5 percent to 6 percent silicon, $30.50; standard Bessemer, $25.50. Some sellers are asking even higher prices, though the above are from conservative factors in the trade. A large tonnage of foreign iron has been received by boat in the last few days, to apply on old orders, and more cargoes are expected in the near future. One large firm which bought a lot of foreign iron some weeks ago states that it is contemplating further heavy purchases abroad, the domestic situation not being such as to give any indication of improvement in the near future. Quotations for iron for delivery in the first half of next year have been advanced to the basis of $20 Birmingham, for No. 2 foundry. We revise our prices as follows:

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| Lake Superior Charcoal | $26 00 to 27 00 |
| Local Coke Foundry No. 1 | 23 50 to 24 00 |
| Local Coke Foundry No. 2 | 23 00 to 23 50 |
| Local Coke Foundry No. 3 | 22 50 to 23 00 |
| Local Scotch Foundry No. 1 | 24 00 to 24 50 |
| Local Scotch Foundry No. 2 | 23 50 to 24 00 |
| Southern Coke No. 1 | 24 65 to 25 15 |
| Southern Coke No. 2 | 24 15 to 24 65 |
| Southern Coke No. 3 | 23 65 to 24 15 |
| Southern Coke No. 4 | 23 15 to 23 65 |
| Southern No. 1, soft | 24 65 to 25 15 |
| Southern No. 2, soft | 24 15 to 24 65 |
| Southern Gray Forge | 22 15 to 22 65 |
| Southern Silveries | 26 65 to 27 15 |
| Jackson Co. Silveries | 31 00 to 32 00 |
| Ohio Strong Softeners | 26 10 to 27 10 |

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|---|---|
| Alabama Car Wheel | 27 15 to 27 65 |
| Malleable Bessemer | 25 00 to 26 00 |

BARS.—New business has been of light proportions and the market is rather weaker, if anything. Some sales of bar iron are reported to have been made at 1.75c, though the local mills deny having taken business at this figure. Specifications from implement manufacturers and car builders have been good, the bulk of it being for light sizes, however. Steel mills are suffering in proportion with manufacturers of bar iron in the prevailing scarcity of specifications, and these report that they can accommodate a larger tonnage in the heavier sizes than they are receiving. We quote mill shipments, Chicago delivery, Bessemer steel, 1.75c to 1.85c; angles, less than 3x3, 1.85c to 1.95c base; iron, 1.80c to 1.85c; hoops, 2.15c. Prices for stock from store, steel, 2c to 2.10c; iron, 2.15c to 2.20c; hoops, 2.40c to 2.50c; angles, 2.50c to 2.60c.

SHEETS.—Competition continues active for the business that is being offered, and instances are reported where the quotations given below are cut to secure desirable orders. The demand is good, but is confined largely to heavier gauges. We quote No. 27 black, mill shipments, Chicago delivery, 2.80c to 2.90c; galvanized, 3.30c to 3.40c; from store, No. 27 black, 3.05c to 3.15c, 75 and 5 percent.

STRUCTURAL STEEL.—Mills are not active sellers at the present time, the demand of the past few weeks having spent itself. There is considerable building being done locally, but the material required comes largely from stock. We quote mill prices, Chicago delivery as follows: Beams, 15 inches and under, 1.75c to 1.85c; 18 inches and over, 1.85c to 2c; structural angles, 3x3 to 6x6, 1.85c to 2c; universal plates, 1.75c to 2c; angles, channels and tees smaller than 3 inches, 1.85c to 2c base. Prices on lots from store, 2½ cents to 3½ cents per pound.

BILLETS.—Very little foreign material is being offered in the west, and the sales of domestic billets have been limited to small lots. We quote open hearth billets, $38 to $40, according to the size of order, delivery required and the credit of buyer; foreign forging billets, $36 to $37.

RAILS AND TRACK SUPPLIES.—There has been a good demand during the week for light rails for delivery this year, and sales have been made aggregating 2,000 tons. An order for 20,000 tons of heavy sections, which has been pending for some time, has at last been placed with the local manufacturer, delivery to be made late in the coming year. Track supplies are in brisk demand, though mills are sold up for this year. We quote standard sections, $28; second quality, $27; light rails, 45 pounds, $34 to $35; 12 pounds, $40 to $41, with regular differentials for intermediate sizes; light rails out of store, $45 to $50. Track supplies, mill shipment, are quoted as follows: Angle bars, 2c to 2.10c; spikes, first quality, 2.25c; second quality, 2.15c; track bolts, 3½x¾, with square nuts, 2.85c to 3c per 100 pounds; with hexagon nuts, 3.05c to 3.15c with usual differentials for other sizes

MERCHANT PIPE AND BOILER TUBES.—There is a fair inquiry for both products and buying is reasonably good. The market, however, does not show its former firmness, owing to the competition of outside mills.

CAST IRON PIPE.—New business is confined largely to small lots, heavy buying of this material generally being done in the spring. We quote f. o. b. Chicago, 4-inch water pipe, $37; 6-inch, $36; 8-inch and upwards, $35; gas pipe $1 a ton higher.

PLATES.—Mills report an active inquiry and orders aggregating 15,000 to 20,000 tons, for delivery next year. We quote mill prices, Chicago delivery, future shipments: Tank steel, ¼ inch and heavier, 1.75c to 2c; flange steel, 1.85c to 2.10c; from stock, tank steel, ¼-inch and heavier, 2.25c to 2.40c; 3-16, 2.35c to 2.50c; No. 8, 2.40c to 2.60c; flange steel, 2.50c to 2.65c.

WIRE AND WIRE NAILS.—The local interest reports an active inquiry from all parts of the West for all kinds of farming material. We quote prices to jobbers, carload lots, Chicago delivery as follows: Smooth wire annealed, 1.90c; galvanized, 2.20c; painted barb wire, 2.30c; galvanized barb wire, 2.60c; wire nails, $2; cut nails, 2.20c; polished staples, 2.15c; galvanized staples, 2.45c. Prices to retailers are five cents higher than above quotations on carload orders, and 15 cents higher on less than carload lots.

COKE.—Local furnaces and foundries are still suffering keenly from the continued shortage of fuel, and no improvement seems to be in sight. Spot Connellsville coke is offered at $12 to $14, and Virginia coke at slightly less figures. For delivery next year, foundry coke is being offered at $7 to $7.50, Chicago.

OLD MATERIAL.—Outside of cast iron scrap, all kinds and grades of old material are weaker in value than since our last report. This is due in large measure to the condition of the market for finished material, the price of which is altogether too low compared with the prices asked for old material. Practically all the mills have withdrawn from the market, and with the large offerings being made by railroads and country dealers, the price of iron and steel scrap has been forced from 50 cents to $1 a ton lower than a week ago. We have revised our quotations as follows:

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| Bessemer | $21 75 to 22 25 |
| No. 1 Strong Foundry | 23 00 to 23 50 |
| No. 2 Strong Foundry | 22 50 to 23 00 |
| No. 3 Foundry | 21 75 to 22 25 |
| Scotch No. 1 | 23 00 to 23 50 |
| Scotch No. 2 | 22 50 to 23 00 |
| Gray forge, Valley | 20 75 to 21 00 |
| Lake Superior Charcoal | 25 00 to 25 00 |
| Old Iron Rails | $24 50 to 25 00 |
| Old Steel Rails (mixed lengths) | 18 00 to 18 50 |
| Old Steel Rails (long lengths) | 23 00 to 23 50 |
| Relaying rails | 31 50 to 32 00 |
| Old wheels | 22 50 to 23 00 |
| Heavy melting steel | 16 50 to 17 00 |
| Mixed country steel | 15 00 to 15 50 |

The following are selling prices per net ton:

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| No. 1 R. R. wrought | $19 50 to 20 00 |
| No. 2 R. R. wrought | 18 00 to 18 50 |
| Shafting | 19 50 to 20 00 |
| Dealers' forge | 16 00 to 16 50 |
| No. 1 busheling | 14 00 to 14 50 |
| No. 1 Cast | 16 50 to 17 00 |
| Railway malleable | 16 00 to 16 50 |
| Country malleable | 14 50 to 15 00 |
| Iron axles | 23 50 to 24 00 |
| Steel axles | 19 50 to 20 00 |
| Cast borings | 10 50 to 11 00 |
| Wrought turnings | 13 50 to 14 00 |
| Iron axle turnings | 14 50 to 15 00 |
| Steel axle turnings | 13 00 to 13 50 |
| Stove plates | 12 50 to 13 00 |
| Old iron splice bars | 21 00 to 21 50 |

## CLEVELAND.

OFFICE OF *The Iron Trade Review*,
1064 ROSE BUILDING, Nov. 12.

IRON ORE.—A report from Detroit that certain ore shippers in Cleveland were ready to make season contracts for shipping ore for 1903 on the basis of 75 cents from ports at the head of Lake Superior had no foundation so far, at least, as the leading shippers are concerned. With the exception of an offer of 100,000 tons made a week or so ago, there has been no figuring in Cleveland for next year. The prevailing rate from Duluth is now 80 cents, as it has been for several weeks. From Escanaba to Buffalo, 75 cents is paid and 70 cents from Escanaba to Ohio ports. The rate from Marquette is 70 cents. There is some talk about prices of ore for next year, but no action has been taken. As pig iron is selling at about $8 per ton more than it was last winter when the prices of ore were fixed, it might be argued that the prices of ore should advance in somewhat the same proportion, but the law of supply and demand will assert itself and as there will be no shortage of ore, it is not anticipated that prices will be advanced much if at all.

COKE.—Many foundrymen who have formerly purchased of the Frick Coke Co. are in a quandary as to what they will do for next year. Other conpanies show a disposition to take care of old customers first and former patrons of the Frick company are told that they must wait. The price at the ovens for foundry coke for next year is from $4.75 to $5. Current receipts in this city are very small and the railroad situation does not improve.

PIG IRON.—The furnaces are so far behind in their deliveries that few sales for the first half of 1903 are being made. Sales for the second half are not large. They are on a basis of $22.75 Cleveland for No. 1 foundry and $21.75 for No. 2. The troubles of the sales agents who deal in foreign iron are many. It is found that deliveries are exceedingly uncertain. Nova Scotian iron promised for delivery September 1 has not yet arrived in this city, but is reported as being loaded on cars in New York for the West. Delays in arrival of ships carrying Scotch and English iron are exasperating and have had a tendency to check sales, which are being made in limited quantities at

the following prices: German, $25.50; Scotch, $24.50 to $25.50; English, No. 2 Middlesboro, $23.50 to $24. We quote domestic as follows for shipment in the first half of 1903:

| | |
|---|---|
| Bessemer | $21 75 to 22 25 |
| No. 1 Strong Foundry | 23 00 to 23 50 |
| No. 2 Strong Foundry | 22 50 to 23 00 |
| No. 3 Foundry | 21 75 to 22 25 |
| Scotch No. 1 | 23 00 to 23 50 |
| Scotch No. 2 | 22 50 to 23 00 |
| Gray Forge, Valley | 20 75 to 21 00 |
| Lake Superior Charcoal | 25 00 to 26 00 |

FINISHED MATERIAL.—Competition has been marked in most lines. In sheets, however, there are some indications that the smaller companies, which have been cutting about $2 per ton below the prices of the principal producers, are more cautious about quoting prices and are not disposed to invite another reduction by the principal producers. It is now expected that the latter will announce new prices Dec. 1, but this may not be done if competitors are not so active during the coming two weeks. The prices of distributors of the product of the leading seller are as follows: For 3-16-inch sheets and heavier, 2.10c to 2.15c, Cleveland. Mill sales of black sheets, Cleveland, to consumers: No. 24, 2.65c to 2.75c; No. 26, 2.75c to 2.85c; No. 27, 2.85c to 2.95c; and the following prices out of stock: No. 10, 2.35c to 2.50c; No. 12, 2.45c to 2.60c; No. 14, 2.50c to 2.60c; No. 16, 2.55c to 2.70c; Nos. 18-20, 2.75c to 2.90c; Nos. 22-24, 2.85c to 3c; Nos. 25-26, 2.95c to 3.10c; No. 27, 3.05c to 3.20c; No. 28, 3.15c to 3.30c. On galvanized sheets we quote mill sales in carload lots, Cleveland, as follows: Nos. 10 and 11, 2.60c to 2.75c; Nos. 12-14, 2.70c to 2.85c; Nos. 15-17, 2.80c to 2.95c; Nos. 18-21, 3c to 3.15c; Nos. 22-24, 3.30c to 3.45c; Nos. 25-26, 3.55c to 3.70c; No. 27, 3.80c to 3.95c; No. 28, 4.05c to 4.20c; No. 29, 4.45c to 4.60c; No. 30, 4.95c to 5.10c. Galvanized sheets out of stock are quoted 75 and 2½ off. Competition in bar iron is active and some of the smaller mills are selling as low as 1.70c, Pittsburg. The larger companies, however, show a determination to hold the price up to 1.80c, Pittsburg, and on the whole conditions are rather more favorable than they were one week ago. We quote steel bars at 1.60c for Bessemer and 1.70c for open-hearth, Pittsburg, and these prices are maintained. Sales out of store, Cleveland, are at the rate of 2c for iron and 1.90c to 2c for steel, while from 2.10c to 2.25c is paid for large rounds. Jobbers are doing an excellent business out of store. Plates are still strong, but are not quite so hard to get. The principal producer does not expect to be in the market again this year. Deliveries of the smaller sizes of structural material are a little more prompt. Fair business was done within a few days on rails for interurban companies. Inquiries have been numerous, including one for material for a large office and business block in a southern Ohio city.

OLD MATERIAL.—The dullness of last week has been followed by decided indications of weakness. No. 1 R. R. wrought scrap is $3 per ton lower, cast borings have declined $1 and heavy steel 50 cents. Practically no sales of rails are being made. There is very little demand for rolling mill supplies. We quote Cleveland prices, all gross tons, as follows:

| | |
|---|---|
| Old iron rails | $25 50 to 26 50 |
| Old steel rails (over 6 feet) | 22 00 to 23 00 |
| Old steel rails (6 feet and under) | 21 00 to 22 00 |
| Old car wheels | 20 00 to 21 00 |
| No. 1 R. R. wrought scrap | 20 00 to 21 00 |
| Mill scrap | 19 50 to 20 00 |
| No. 1 machine cast scrap | 20 00 to 21 00 |
| Iron axles | 29 00 to 30 00 |
| Steel axles | 28 00 to 29 00 |
| Axle turnings | 18 50 to 19 50 |
| Wrought turnings (free from cast) | 16 00 to 17 00 |
| Cast borings | 11 00 to 12 00 |
| Uncut wrought iron boilers | 12 00 to 13 00 |
| Steel boiler plates | 17 00 to 18 00 |
| Grate bars | 12 00 to 13 00 |
| Pipes and flues (clean) | 17 50 to 18 50 |
| Tank iron | 17 00 to 18 00 |
| Hoop and band iron | 13 50 to 14 50 |
| Sheet iron | 12 00 to 13 00 |
| Wrought drillings | 15 00 to 16 00 |
| Malleable iron (railroad) | 20 50 to 21 50 |
| Malleable iron (agricultural) | 17 50 to 18 00 |
| Stove plate | 15 00 to 16 00 |
| Heavy steel | 18 50 to 19 50 |

## CINCINNATI.

Nov. 11.

The coke situation, so far as spot business is concerned is slightly easier. Sales of spot coke are being made at $9 to $11 f. o. b. Cincinnati. This shows prices to be about $2 less than a week ago. For next year's delivery sales are mainly at $4.50 to $5 for foundry coke at ovens. There is no improvement in deliveries, and as consumers are unable to obtain coke on contracts there are quite frequent transactions in spot coke. It has been noted that consumers are urging forward more coke than their usual requirements, for which they have contracts. It has been explained that under normal conditions gas house coke was used to some extent, as it could be bought for $3.50 to $3.75 per ton, but since the scarcity of anthracite coal, gas house coke has advanced to $6 to $7, consequently there was no economy in using it when Connellsville coke on contracts was costing $4.50 to $4.75. Sales agents are advising their customers, who can make use of this gas house coke, to continue doing so, even at the increased price, in order to husband their supply of Connellsville coke, which they must have for some uses, where gas house coke will not do. This it is argued would be wise in view of the difficulties in getting transportation for coke which is now at the ovens waiting shipment and of the uncertainty of improved conditions. In the iron market business has been quiet and prices are slightly easier. This applies to spot pig iron and most of the lighter makes of finished material. Scrap iron is less active and dull.

PIG IRON.—The striking features of the pig iron market are lower prices for spot iron and sales for the second half of 1903. We quote spot No. 2 foundry at $20 to $21 Birmingham. Although the market is irregular and orders have been taken as high as $23 to $24. No. 3 foundry is obtainable at $18.50, No. 4 foundry at $16, and gray forge at $15.50 to $15.75 spot Birmingham. For the first half of next year No. 2 foundry sells at $19 to $20 Birmingham. There is not much business being done, however, as buyers are holding off. There is a general disposition to wait results both on the part of buyers and sellers. There is no real weakness in the market but some cutting down of extreme prices which prevailed under the recent unusual conditions. Business appears to be nearing a more normal condition. While the Valley furnaces are still reported seriously hampered through lack of fuel supply, Southern furnaces have done well and not a furnace is reported as out in the South. They are producing better, obtaining coke more regularly and making their regular grades. Deliveries are also more satisfactory and this may to some extent explain the easier tone to the spot iron market. Some spot iron has come on the market through consumers who have overbought and are turning the iron back on sales agent to sell for their account. Under the various influences thus surrounding the trade, the wide difference between spot and future quotations is shrinking as we near the merging of the current year into 1903. Some business has been done for delivery in the second half of next year. We report a sale of 500 tons of Northern No. 2 foundry at $21 cash furnace and 500 tons of Southern No. 2 foundry at $18 cash Birmingham for delivery in the second half of 1903. These transactions indicate the trend of the market but nothing definite as to prices for the second half of 1903 can be obtained. Some furnaces refuse to quote, others quote anywhere from $19 to $21 Birmingham. On the other hand the buyers are showing less interest in the market and maintain a disposition to stay out until the situation becomes more settled. Prices f. o. b. Cincinnati for delivery after Jan. 1, 1903 are as follows:

| | |
|---|---|
| Southern Foundry No. 1 | $23 75 to 24 25 |
| Southern Foundry No. 2 | 22 25 to 23 25 |
| Southern Foundry No. 3 | 22 25 to 22 75 |
| Southern Foundry No. 4 | 20 75 to 21 50 |
| Southern Foundry No. 1, soft | 23 75 to 24 25 |
| Southern Foundry No. 2, soft | 22 25 to 23 25 |
| Gray Forge | 20 00 to 21 00 |
| Northern Foundry No. 1 | 26 10 to 26 60 |
| Northern Foundry No. 2 | 25 10 to 26 10 |
| Southern car wheel iron | 28 00 to 29 00 |
| Malleable coke iron | 25 00 to 25 75 |

FINISHED MATERIAL.—We note an easy tone to the market and a dull trade which is rather to be expected at this season of the year. There are a few slight reductions noted in quotations. For all light materials quick deliveries are now obtainable. In wrought pipe and boiler tubes the anticipated action of the leading interest is deterring buyers and the business doing is only a fair order business for immediate needs. Sales of black sheets No. 27 are at 2.75c in car lots of 500 bundles. Black sheets out of store are selling as follows: No. 28, 3.20c; No. 27, 3.10c; No. 16, 2.75c; No. 14, 2.65c; No. 12, 2.60c; No. 10, 2.50c. Galvanized sheets car lots sell at 75 and 10 percent off; less than car lots 70 and 10 percent off.

Tank plates out of store are quoted at 2.25c for ¼-inch and 2.35c for 3-16-inch. Prices for bar iron in carload lots are: 1.82c base, half extras f. o. b. Cincinnati; steel bars, 1.72c base, half extras f. o. b. Cincinnati. Both are retailed at 2c base, half extras, out of store. Beams and channels are selling at 2½ to 3c retail, and angels at 2.40c for base sizes. Wrought pipe and boiler tubes are quoted as follows for carload lots f. o. b. Cincinnati:

WROUGHT PIPE.

(Basing Discounts.)

| | Black. Percent. | Galv. Percent. |
|---|---|---|
| ⅛ to ⅜ in. inclusive | 58.8 & 10 | 46.8 & 10 |
| ¼ to 12 in. inclusive | 65.8 & 10 | 53.8 & 10 |

BOILER TUBES.

| | Steel. Percent. | Iron. Percent. |
|---|---|---|
| 1 to 1¼ in. | 38.8 & 5 | 41.3 & 5 |
| 1¾ to 2½ in. | 36.3 & 5 | 38.8 & 5 |
| 2¾ to 3 in. | 46.3 & 5 | 48.8 & 5 |
| 6 to 13 in. | 36.3 & 5 | 38.8 & 5 |

OLD MATERIAL.—The market holds firm as to prices but is not active, the demand having slackened considerably. We quote as follows:

| | |
|---|---|
| Old No. 1 Wrought Railroad, net tons | $20 75 to 21 00 |
| Cast Machine and Foundry, net tons | 18 50 |
| Old Iron Rails, gross tons | 25 00 to 26 00 |
| Old Steel Rails, gross tons | 24 50 to 25 00 |
| Old Short Lengths, gross tons | 19 00 |
| Old Iron Axles, net tons | 29 00 |
| Old Chilled Car Wheels, gross tons | 22 00 |
| Stove Plate, net tons | 11 75 to 12 00 |
| Wrought Turnings, net tons | 16 00 |
| Cast Borings, net tons | 12 50 |

## NEW YORK.

OFFICE OF *The Iron Trade Review*,
Room 1909, No. 150 NASSAU ST., Nov. 11, 1902.

PIG IRON.—An extremely quiet feeling pervaded the pig iron market in this vicinity during the past week. Among both producers and consumers there was a disinclination to do business for future delivery. As has been the case for several months past, those having immediate wants to supply turn to foreign iron, for which values were a little easier. Sales agents of foreign interests attribute the change to ocean freights being lower. Three pig iron cargoes arrived yesterday, the vessels having been transferred from the coal to the pig iron trade. Middlesboro No. 3 can now be had at this port in large lots, particularly in cargoes, on the basis of $18.75, duty paid. Small lots can be purchased for about $1 higher. Scotch irons still remain firm, and prices are only a shade easier, chiefly because of an increase in home consumption. At the present time German irons have the call in this market. They are selling for New York delivery at about $20.50 per ton for cargo lots. During the week one firm alone received 4,200 tons, and reports that it has negotiations under way for another large lot. This house claims that the analysis of this iron conforms quite closely to that of Southern No. 2 foundry. There is considerable inquiry for foreign irons for delivery the first six months of the new year. Foreign furnaces have not as yet opened their books for this period, and only quote tentative prices to those who make inquiries. The uncertain factor is ocean freights. Scotch furnaces are now making through shipments in good quantities as far west as Chicago.

Southern furnaces have done little or nothing for the second half of next year. The minimum for No. 2 foundry is reported to be $18.50, but $20 is asked by some sellers. The Southern producers, we understand, look for their principal trade in the Central West under existing conditions. We hear of no new developments in Northern iron in the past week. The coke situation still continues to affect the operations of Eastern foundries. The scarcity of fuel has let up but slightly. Purchases of coke by local foundries have been at prices ranging from $7 to $10 per ton at the ovens, according to quantity, and time of delivery. New York prices for 1903 are as follows: No. 1 X Northern, $23.25 to $24.75; No. 2 X, $22 to $22.75; No. 2 plain, $21 to $21.75; Southern No. 1, foundry, $23.25 to $23.50; No. 2 foundry, $22.25 to $22.50; No. 3 foundry, $21.50 to $22; No. 4 foundry, $20.50 to $21.50.

FINISHED IRON AND STEEL.—In the finished material market the feature has been the large and increasing demand for plates, especially for shipbuilding purposes. For spot delivery some very high premiums are paid. In structural shapes evidence abounds that this vicinity has reached its greatest consumption. Building operations in New York city, especially in office structures, which have been on an enormous scale during the past year, are now getting down to normal proportions. Where at one time there was scarcely a week without some contemplated tall structure being announced, now weeks pass without any news of the kind. Sheets are still weak, with small jobbers particularly active in making sales at receding prices. Large jobbers, however, are not anxious to do business under the present adverse conditions. New York prices are as follows: Beams and channels, 15 inches and under, 1.75c to 1.90c; angles, 3 to 6 inches, 1.75c to 1.90c; zees, 1.75c to 1.95c; bulb angels, 2.05c to 2.35c; deck beams, 2.05c to 2.25c; sheared steel plates, tank, 2.10c to 2.15c; flange, 2.25c to 2.30c; fire box, 2.30c to 2.50c; refined iron bars, 1.95c to 2c; soft steel bars, 1.95c to 2.10c; steel sheets, in carloads, New York, No. 28, black, 3.05c to 3.20c; galvanized, 75 and 5 off.

## BIRMINGHAM, ALA.

Nov. 11.

The past week has developed some weak spots in the price of iron for immediate delivery, not only for the lower grades but for No. 1 foundry and intermediate grades. A sale of a round lot of mottled has been reported at $14.50, Birmingham, while it is understood some No. 1 foundry has been sold as low as $22.50, as against $24 to $26 Birmingham, the prices ruling the past 90 days. Several reasons are given for this, the most plausible of which is that with sales being made for the first quarter of 1903 on a basis of $20 to $21 Birmingham for No. 2 foundry, and at $19 to $20 for the first half, the spot market is bound to recede more nearly to the level of January prices, with less than 60 days intervening between present deliveries and deliveries on new contracts for 1903. However, there is so little iron relatively for prompt delivery that sellers are not at all apprehensive as to the situation. The Sheffield furnaces, recently sold by the Tennessee company to the Sheffield Coal & Iron Co., are offering some spot iron, as is the Searles furnace of the LaFollette Co., and here and there other companies in this section are catching up with delayed deliveries and offering occasionally some iron for quick shipment. Practically no sales have yet been made for the last half of 1903. It seems the sellers are not soliciting such business now, and buyers are not inclined to place their orders so far ahead, feeling confident the price will be no higher later on and possibly lower. Charcoal iron still continues in strong demand, particularly the chilling grades. Recent sales have been noted at prices ranging from $24 to $26.50, Birmingham basis. Every charcoal stack in the South is now making iron with the exception of the old Round Mountain and Briarfield furnaces. The former has been purchased by a syndicate that proposes to overhaul and put it in operation at an early day. The Briarfield furnace it is understood will likely never resume.

There is a better supply of coke for furnace use than for some time past. However, the demand from the foundries and from the Western smelters continues good and prices remain about as heretofore—$6 to $7 at the ovens for 72-hour coke. There is some demand from points north of the Ohio, but lack of equipment in which to move the coke prevents shipments to any considerable extent. It is understood Alabama coke has given entire satisfaction where used in Ohio and other points out of the district, and with the announcement of the railroads that effective November 15 a rate of $2.40 per ton to Cincinnati and Jeffersonville will be made, it is expected that quite a lot of Alabama coke will find its way to these points. The coal market has witnessed no change in prices, notwithstanding it was expected there would be a slight reduction after the striking miners of the Tennessee company resumed work. A large number of the mines in this immediate district are unable to get out anything like their normal output owing to insufficient car supply. The railroads seem to be less able than ever before to handle the business offered them. Lack of sufficient motive power is one great trouble.

The Birmingham Railway Light & Power Co. has put down several miles of very heavy rail recently, and hopes soon to have the electric line to Bessemer complete. The system is being rapidly put in first class condition in every respect. New cars are being received, and for the past two weeks the tracks in the heart of the city have been undergoing replacement with 90-pound girder rails.

# The Metal Market.

## NEW YORK.

OFFICE OF *The Iron Trade Review*,
ROOM NO. 150 NASSAU ST., Nov. 11.

PIG TIN.—At the present time the market is in the control of manipulators, with a receding tendency in prices. Although the statistical situation is looked upon favorably, prices are at variance with it. Closing prices today were easy. In London the market for the week declined considerably, and cable dispatches had a bearish aspect. At the Metal Exchange today closing prices were as follows: Spot, 26.05c to 26.25c; November, 25.75c to 26c; December, 25c to 25.50c; January, 24.85c to 25.15c. London closings today were as follows: Spot, £117 5s; futures, £115 17s 6d. Arrivals up to date at Atlantic ports aggregate 790 tons, with 1,939 tons afloat.

COPPER.—It is difficult to conceive if a duller market than that noted during the week under review. The best advices are that consumers have provided for their wants up to February of next year, and with production constantly increasing over consumption, a featureless situation results. The outlook is not regarded as the best, and those who incline to this belief point to weakness of copper stocks recently, particularly Amalgamated Copper, to support their view. In London the market for the week steadily declined. The closing prices at the Metal Exchange today were as follows: Lake, 11.50c to 11.70c; electrolytic, 11.40c to 11.50c; casting, 11.40c to 11.50c; standard, 10.75c nominal. London closings today were as follows: Spot, £117 5s; futures, £115 17s 6d.

PIG LEAD.—Without particular feature, sales being on the basis of 4.12½c for lots of 50 tons or more. In St. Louis a weaker market was noted, sales having been made as low as 4c. London situation unchanged at £10 13s 9d.

SPELTER.—Trading has been on a limited scale, with spot ruling at 5.40c. For November to December shipment from the West, 5.35c is asked. In St. Louis, sales at 5.20c have been made. The London market is unchanged at £19 10s.

ANTIMONY.—Cookson's has been selling at 9½c, Hallett's at 7¾c, and other brands at 7¼c to 7½c. Demand moderate.

NICKEL.—Unchanged. Prices average 40 to 60c, according to quantity.

QUICKSILVER.—Jobbers only are in the market, and sales have been made on the basis of $48 per flask in lots of 100 flasks. London, £8 15s.

## CHICAGO.

OFFICE OF *The Iron Trade Review*,
519 MONADNOCK BLOCK, Nov. 11.

The metal market is without change as to the conditions affecting buying and selling. There is a good demand, though prices are not very steady. We quote jobbers' prices to consumers as follows: Lake copper, carload lots, 12c; less than carload lots 12¼c to 12¾c. Pig tin, 27½c; pig lead, carload lots, 4.10c; less than carload lots, 4½c. Sheet zinc, carload lots, 6½c, and 6.65c in lots of 600 pounds. Spelter, carload lots, 5.35c; less than carload lots, 5¾ to 6c. Antimony, 10¾ to 11c for Cookson's and 9¾ for Hallett's in small quantities. Nickel, 50c to 60c, according to size of order and delivery. There is a good demand for old metals. Selling prices of dealers are as follows: Copper wire, $10.50; heavy copper, $10.50; light copper, $9.50; red brass, $10.62½; yellow brass, $8; light brass, $6.75; lead pipe, $3.90; zinc, $3.75.

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Tate, Jones & Co., engineers and contractors, with offices in the Empire Bldg., Pittsburg, have added a furnace building department and are in position to design and contract for all kinds of heating furnaces for melting, annealing, heating and tempering, to be heated with oil, gas, coal or coke. Special designs of plate and rod heating furnaces have been made to be adapted to the use of any fuel. The company will also manufacture portable rivet forges and have a newly designed reversing brass melting furnace using fuel oil. Tate, Jones & Co. have had wide experience in the manufacture of fuel oil burning appliances and have equipped 14 ocean going vessels and the U. S. S. General Comstock with their devices. In addition 200 plants in the South have been equipped with their fuel oil devices. The company also does an extensive business in hoisting, elevating and conveying machinery for all purposes. A modern plant for the manufacture of the various equipment used in their engineering work was recently completed at Leetsdale, Pa.

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### Volume X of "The Mineral Industry."

THE MINERAL INDUSTRY: Its Statistics, Technology and Trade in the United States and other Countries to the end of 1901. Edited by Joseph Struthers, Ph. D. 8vo. 982 pages. New York: Scientific Publishing Co., Price $5.

This is the tenth volume of the annual publication from the office of the *Engineering and Mining Journal*, covering statistics of production and reviewing the technical and commercial progress of a year in the mineral industry. The present volume is in many respects an advance over those of other years. The statistics, owing to the later date of publication than formerly, are now from official sources, acknowledgement being made to the Department of Mineral Resources of the United States Geological Survey. In iron and steel the figures of the American Iron and Steel Association are given and in Lake Superior iron ores the figures specially collected by *The Iron Trade Review* are used without credit. The immensity of the field covered by this work makes the achievement of the editors a most noteworthy one, the volume being unique in all the literature relating to mineral production. The iron and steel review scarcely meets expectations, in view of the eminence of that industry, the market reviews in particular being cursory and superficial. The article by John Birkinbine on "Modern Improvements in the Manufacture of Pig Iron" is of genuine interest and value, as are all the contributions of experts in the various lines specially treated. Dr. F. Schniewind is the author of a particularly good review of the manufacture of coke in the United States, with special reference to the markets for by-products. Among a score of other contributions are those on "Progress in Power Plants Using Gas Producers and Gas Engines," by Wm. Kent; reviews of petroleum and nickel developments, progress in the corundum industry in 1901, developments in alloys, in magnetic separation, in fire clays, fluorspar, etc. It is fair to say that this volume has been indispensable to the mineral industries of the country and all in all reflects high credit upon its editors and publishers.

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The 60-day settlement of the wages of the finishers and puddlers was made at Youngstown, Wednesday, by the representatives of the manufacturers and the Amalgamated Association. No justification for change was found in the prices for material shipped in September and October, and wages will remain the same for the next 60 days.

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The Millie Iron Ore Co., of which S. Dessau, 9-11 Maiden Lane, New York, is secretary and treasurer, proposes to extend its operations and further develop its ore body, considerably increasing the output of the Millie mine at Iron Mountain, Mich. For this purpose 5,000 shares of treasury stock have been opened to subscription. The company has issued a prospectus giving a full description of the Millie property and its equipment, and indicating the character and extent of its ores, as well as of the ores of the nearby properties, including the Pewabic, the Walpole and the Chapin. The product of the company is high silica and low phosphorus Bessemer hematites.

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The Pease Car & Locomotive Works, Chicago, recently organized with a paid up capital of $500,000 to take over the business, assets and good will of F. M. Pease and conduct operations on a more extensive scale, have completed a new car manufacturing plant at Hegewisch and are now prepared to turn out 20 cars daily. The officers are: President, W. F. Barnes, of Rockford, Ill.; vice president and treasurer, A. A. McClanahan; secretary, A. C. Pease, and general manager, F. M. Pease, president and founder of the original company.

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The Dunbar Furnace Co., Dunbar, Pa., blew in furnace No. 2 this week after relining it and making extensive general repairs. No. 1 stack was blown out last week for relining and the work will be pushed rapidly so that the stack can be relighted early in January. Most of the parts of the two new blowing engines ordered from the Southwark Foundry & Machine Co. have already arrived and will be set up ready for operation about Jan. 1.

## THE DECISION ON THE BILLET DUTY STANDS.

(Special Correspondence.)

NEW YORK, Nov. 10.—The Board of U. S. General Appraisers, before whom was heard on Thursday, Nov. 6, the appeal of the importers of steel from the decision of United States Appraiser Jewell, fixing the duty on steel billets imported from Germany on the basis of 86 marks per 1,000 kilos, has handed down a decision affirming the findings of Appraiser Jewell in every particular. Inasmuch as the decisions of this body are final, the only remedy open to the importers consists in again bringing the matter up before the board of classification in another form, and in the event of adverse action, finally bringing it before the courts. At this writing this is the course they intend to pursue, although they have arrived at no definite conclusion.

As matters stand now, A. Milne & Co., whose shipment of 300 tons of German billets started the present controversy, will have to pay the Government about $1,100 penalty for putting on their invoices the exact price at which they purchased the steel. This the Government officials insist on calling "undervaluation," for which the law inforces a penalty. Other importers will not be affected in this way, because when Milne & Co. came in conflict with the customs authorities, they immediately raised billet price on their invoices to 90 and 92 marks, although really purchasing the billets from 16 to 27 marks lower. It might be stated here, that as long as the price is at or lower than 92 marks per 1,000 kilos, the duty remains at 3-10 cent per pound, but above that figure it is 4-10 cent per pound.

Although twice beaten in their endeavors to have the price they really pay marked on their invoices, and the duty levied accordingly, the importers will not suffer any hardship of a financial character, for the duty remains at 3-10 cent per pound. As the matter stands all that the importers today have to do is to mark the price on their invoices at 92 marks, which of course is not stating the price correctly, and as they have repeatedly informed the Government authorities, but the latter have taken a view of the matter which admits of no other alternative.

A. Milne & Co. were represented before the Board of General Appraisers by Attorney Frederick C McLaughlin, of No. 32 Liberty St., this city. In speaking of the hearing to a representative of *The Iron Trade Review*, Mr. McLaughlin, said: "The customs authorities have treated us with marked courtesy in the matter. They have decided against our contentions, however, on the basis of the rulings by the United States Supreme court in the Passavant case. This case related to some velvet goods which were brought into Germany under bond from either Switzerland or France. If taken out of bond and used in Germany they were subject to a duty. But they were shipped to the United States and the duty, based on the price in Germany came up for adjudication before the United States Supreme court. The opinion in the case was written by Chief Justice Field, who said that the price of the goods in Germany was what they cost for importation into Germany, plus the amount of the duty imposed by the German statute, although, I might add, two judges dissented from this view.

"The customs authorities, doubtless acting on their own advices, look upon the Passavant case as deciding the points at issue in this billet controversy. The fact is there is no relevancy in the Passavant case. At the present time nearly all the billets made in Germany are the output of one large syndicate, which is a manufacturing as well as a producing concern. Of the output of this syndicate for the past nine months, in the form of slabs, billets, and blooms, eighty percent will be used by its own constituent companies, leaving 10 percent for use among its competitors, and 10 percent for the purposes of export. Now in order to drive out its small competitors, it has fixed an arbitrary price for whatever it sells to them, and this for its own protection. The syndicate also fixes a price for what it sells for export, which is considerably below what it exacts from domestic consumers. It is not interested in the export trade at all. That accounts for the difference in price in the exporter's favor. Yet the Government contends that the price at which the syndicate sells to its competitors with a view to driving them out of business, is in reality the open market price, although the tonnage represented amounts to but 10 percent of the syndicate's output. We contend that the only home market price is that at which the billets are selling for export.

"What makes the finding of the customs authorities all the more unsatisfactory is the peril to which it exposes importers. In consequence of this controversy, all exporters of steel billets are now marking their invoices at 92 marks or a little lower, although they purchase their billets considerably better. But suppose the German syndicate decides upon summary measures to drive its competitors out of business, and raises its price to them above 92 marks, the importers, in this case, would be forced to pay the extra duty, as well as the penalty for undervaluation, which would amount to at least $2 per ton. The only way out of the dilemma is for the importers to name the correct price on their invoices.

"We have not yet decided what action we shall now take in the matter. I think it is possible for us to bring it up for appeal to the board of classification in another form. Should we do this, and an adverse decision result we will then be permitted to appeal to the courts. At the present time the customs appeal calendar is so congested, that I do not think we could expect a decision before at least a year, if not a year and a half."

## REPORTED IRON ORE DISCOVERY IN INDIANA.

Indianapolis dispatches of the past few days have called attention in glowing terms to the reported discovery of iron ore deposits of great value and extent in Sullivan County, Ind. The same dispatches say that a vein of coal "which is almost pure charcoal and can be utilized for smelting the ore without coking" has been found in the same locality, and that limestone and building stone occur there. The finds are announced as having been developed in the opening up of territory for the Indianapolis Southern Railroad. This line is chartered to run from Indianapolis south to Rockport, Spencer County, on the Ohio River. A branch is to be surveyed from Bloomington, Monroe County, through Greene County into Sullivan County, to tap the coal fields of these counties.

Sullivan County, in which the ore deposits are said to have been found, is about 75 miles southwest of Indianapolis, one of the western tier of counties in the State. D. M. Parry, the well known Indianapolis manufacturer, president of the Indianapolis Southern Railroad, is quoted as saying that when evidences of iron ore in considerable quantities were reported 60 days ago, the company engaged three Alabama experts, whose report is expected within the next 10 days. Mr. Parry, according to the newspapers, said that while the extent of the ore is not known, it is enormous. He added, so the papers report, that the ore assayed 60 to 70 percent in iron and is practically inexhaustible; also that the discovery is destined to revolutionize the iron industry in that part of the country.

With all due respect for the opinions of those who have had to do with these discoveries, the iron trade will want more evidence than has been presented to be persuaded that anything of extraordinary value has been found in Sullivan County. From State Geologist W. S. Blatchley, of Indianapolis, we have the following reply to a telegram of inquiry sent from this office:

"Know nothing of alleged iron discoveries in Indiana. Best deposits heretofore known show 47 percent iron. These are in Greene County."

Greene County is the next county east of Sullivan County, and its iron deposits, though known to the geologists, have not yet been represented in the reports of production for the United States.

By those directly interested in the Indianapolis Southern Railroad and its proposed branch into Sullivan County, *The Iron Trade Review* is advised that they are not yet prepared to make a public statement, but will do so at the earliest possible moment. Meantime it may be said that in spite of the estimates of $100,000,000,000 that have been put out as a measure of their value, the "inexhaustible quantities of 60 to 70 percent ore" must be set down as "not proven," though the signs of vigorous railroad promotion are abundant. If more comes of the matter, authenticated statements will have proper credence when they are presented.

# THE IRON TRADE REVIEW

**Devoted to the Machinery, Metal-Working and Foundry Trades, and Iron and Steel Manufacture.**

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## IRON TRADE CONDITIONS AND PROSPECTS.

The identification in some minds, of the manufacture of securities with the manufacture of iron and steel has led to some confusion of ideas respecting the two industries in the past few weeks. The result is that Wall Street is full of pessimism respecting the iron trade, and the abounding prosperity of the country's farming community, its railroads and every mining and manufacturing industry in every section has been lost sight of for the moment. Dear money has come, partly from the continued enhancement of values, the swelling of capitalizations and the multiplication of securities, involving large and rapid expansions of credit. The dangers of inflation have been steadily before the country in the past three years. But the ability of our splendid commercial and financial organization to absorb the products of the security industry, that has been the most amazingly prosperous of them all in that period, has been constantly asserted, and perhaps too readily accepted, in the face of all cautions.

The halt in the operations of the dealers in securities comes opportunely; doubtless it will save the financial world from the serious dangers that threatened. But the iron trade will no more relish now than it did in April, 1900, the way in which Wall Street troubles are laid at the door of the industry itself. It is true that prices of some iron and steel products have declined recently. Thereupon the course of the market in April, 1900, when the sensational cut of $20 a ton in wire products was made and a dozen plants closed down, is recalled, and the conclusion is reached that the iron trade is about to pass again from feast to famine. Putting aside the differences between the conditions of April, 1900, and those of today, it might be said that unpleasant as that experience was, and drastic as the process, the outcome was salutary. Prices came down in the summer of 1900 to a basis that while temporarily yielding little profit in some lines, paved the way for the sustained prosperity, at prices generally moderate in finished lines, that has been with the iron trade since.

In 1900 high prices, unjustifiably high in wire as in other products, had diminished demand. There has been no marked evidence in any line this year of the restricting influence of high prices, except as some plans for work may have been laid aside because of the belief that after five years of good prices, a reaction is due in the natural order of things. Today's prices are moderate compared with those at the height of the boom of 1899. Bessemer pig iron can be bought for forward delivery at $21, Valley furnace, as against $25 in October, 1899, while much $16.50 Bessemer iron is yet to be delivered. Steel billets are $28 now, as against $42 in 1899; tank plates 1.60c for forward deliveries, as against 3c then; No. 28 gauge sheets, 2.75c, Pittsburg, in large quantities, as against 3.25c to 3.35c; beams and channels, 1.60c, as against 2.25c; tin plates $3.60, as against $4.65. Prices in most finished products have been held at a moderate level, as has been pointed out repeatedly, and there is no indication that that moderate level will be greatly departed from in the year 1903. The conservative policy of the past year has created a momentum, and the trade is not facing the necessity, as in 1900, of getting down by a plunge from a dizzy altitude.

The causes of the recent reductions in prices are well known. Consumption has not declined, and there has been some very sharp scrutiny all along the line to discover the truth in respect to this. But finishing capacity has increased rapidly in some lines, as indicated by the lists of new plants, particularly tin plate, sheet, tube and wire mills, scheduled in special articles in these columns. Raw materials have been high and production in pig iron has not increased in proportion to the increased demand. The same is true of steel. But even at the high price for steel, finished material in lighter forms has maintained a level that gave a tempting profit to mills buying their steel in the market. To producers having their own ore and coke the profits on steel at the present level have been handsome, even if nothing more were added for the finishing processes. The problem now is to find the level of prices at which the offerings of finished material in certain lines will be reduced sufficiently to make consumption and production better balanced, for it is well understood that only in times of top prices can some finishing plants be run at a profit.

The effect upon the earning power of the United States Steel Corporation of such reductions as have been made may be suggested by a consideration of the tonnage involved. In the four lines affected by recent reductions the outputs of steel corporation plants in the first year of the big consolidation were as follows:

| | Tons. |
|---|---|
| Tin plates | 404,746 |
| Sheets | 415,299 |
| Wire and wire products | 1,078,838 |
| Tubes and pipes | 693,655 |
| Total | 2,592,538 |

The recent reduction in nails and plain wire was

$2 a ton, and in barbed wire $7 a ton. The tin plate reduction is $8 a ton, or about $3,200,000 on a year's product. In sheets the heaviest reduction—$5 a ton—was made on the lightest gauges, while on heavier gauges it ranged from $1 to $3 a ton. It is fair to assume that it would be something less than $1,500,000 on a year's product. The aggregate of the reduction in pipes and tubes is difficult to compute. The merchant, or smaller, sizes are the ones affected, the large tonnage of pipe line material being practically untouched.

It will be seen that the total tonnage involved in the recent cuts is a relatively small proportion of the comporation's total output of finished material. Its output of rails in the first year was 1,675,628 tons; of plates, 742,508 tons; of merchant steel, bars, shapes, the structural products of the American Bridge Co., and miscellaneous finished material, 1,994,967 tons. In addition, the shipments of billets, blooms, etc., were 2,481,227 tons. It would be within bounds to say that on the four lines in which recent reductions have been made, the total tonnage involved being less than 30 percent of the corporation's business, the concessions would amount to about $10,000,000 on a year's business.

As for the outlook in heavier forms of steel products our weekly market reports have indicated that it could scarcely be better. An official statement published this week shows that the constituent companies had orders on their books Nov. 1 for nearly 5,000,000 tons of material, or more than 2,000,000 tons in excess of bookings Nov. 1, 1901. The bulk of the business for 1903 in rails has already been placed. Structural mills have six to seven months' business booked ahead, and plate mills have every promise of full employment in the coming year. In the bar trade tonnage is heavy and the outlook good. Thus in the channels into which more than two-thirds of the steel works output goes, the indications are for well sustained demand, with prices at the level of today. Whatever pessimism there may be among the promoters of the security industry, it is scarcely in order among the manufacturers of iron and steel.

## THE CHANCE TO GET UP.

There are enough skeptics abroad to make necessary the constant proclamation of the gospel of opportunity. The history of our country abounds in lives that began in low estate and in maturity were inseparable from large affairs. No doubt nine out of every ten men who had part in the honors to John Fritz at New York recently came up out of conditions ordinarily considered unpromising. Yet latter-day prophets of evil deplore the passing of such days. Whitelaw Reid, himself the product of the simple and circumscribed farm life of Greene county, Ohio, tells us that the complaint is not new. Speaking at the Founder's Day celebration in Carnegie Hall at Pittsburg last week he said:

> Years ago a laboring man on strike said to me: "There is no use any longer in talking to us about saving and rising out of our class; about ever becoming an employer and one's own master. That stage of the world has passed. I and my fellows must be day laborers to the end. We must fix our eyes solely on one thing, the day's wages, and make common cause, so that the slowest or poorest workman may be put to no disadvantage by the skill or industry of his fellows, in getting bread for his children." It is the most dangerous delusion of the times, undermining the foundations alike of industrial progress and of public honesty; and its only logical outcome is either a permanent and unrepublican fixity of classes or the hopeless Dead Sea of Socialism.
>
> The same declaration about the impossibility of rising under existing conditions was heard in New York when a young boatman named Cornelius Vanderbilt was beginning to run a little ferry to Staten Island. It was heard in Washington when a young portrait painter named Morse was developing the telegraph. It was heard in Pittsburg when Andrew Carnegie was a messenger boy, and it was heard again when he retired to begin giving away his three or four hundred millions. But after Vanderbilt came Scott and Cassatt, Huntington, Morgan, Hill and Harriman; after Morse came Cyrus Field and Edison and Westinghouse and Bell and Marconi. The development of the iron industry has not been closed by the organization of the United States Steel Corporation and Schwab is not the last day laborer to rise from the iron mills. The chances for the young man are and must be kept as good today as they ever were; in fact they are and must be made as much better as the scale on which this Western World is moving grows yearly and monthly more colossal. But now, as in all past times, with political managers or in spite of them, with trusts or in spite of them, with trades unions or in spite of them, the chances are to him that can see and seize them;—the tools are to him that can use them. "A man's a man for a' that."

It is worth noting that Mr. Reid's true words, which are of a sort needing often to be spoken in the public ear, came out within a few days of the dinner to John Fritz, at which much was said to the same purport. Few men in American life have been paid such distinguished honor as has come to John Fritz. Yet at the dinner given him he said: "It was my misfortune to start in the world with a meager education." And Abram S. Hewitt, his close friend, wrote of him that he was "born in humble life, with no advantages of education or opportunity for position, without influential friends or the favoring accidents of fortune."

Who that knows how history is being made in industry today doubts that the rise of John Fritz can be repeated by the barefoot farmer's boy of 1902? We have referred on another occasion to the chance of the technically trained young man in the great organization of the United States Steel Corporation, and plans on foot for close connection between the best schools of today and the heads of the constituent companies open the way for the struggling technological student to the highest position in any of the dozen great companies that make up the corporation. The school of technology today is a far different training place from the shop school in which John Fritz was a pupil for so many years; but the rule is none the less borne out that no position in any line of endeavor is closed to those in humble life or small initial equipment. The doctrine that the power of an organization must be exerted in behalf of the individual, if he is to be kept from sinking, is most pernicious, and opposes all our boasting of the freedom of the individual. Yet more and more is this doctrine being preached by labor union leaders, who aim at strength in numbers. More and more is it the tendency in labor movements to

gather in skilled and unskilled under the attractive proclamation of the policy of "leveling up." The man of special skill and ambition is told that he must forego some of the fruits of his higher skill and greater ambition to get on, that the mass may be lifted by the sheer force of numbers to a higher level of wages. The benevolent proposal to level "up" conceals the malign and blighting outcome of such an effort, which can be nothing else than submergence in the Dead Sea of socialism. Let unionism have its perfect work and the careers of the John Fritzs will cease to be repeated, and the record of our industrial achievement become a closed and embalmed book.

### Metals and Machinery for Navy Yards.

(Special Correspondence.)

WASHINGTON, Nov. 11.—Bids will be opened at the Bureau of Supplies and Accounts of the Navy Department on November 18 for furnishing supplies for the Navy Yard at Portsmouth, N. H. Among the items included in the proposals are: 10,000 pounds of ingot copper in 20-pound ingots; about 1,700 pounds of brass rod, round; 16,500 pounds of bar iron, square; 10,500 pounds of galvanized sheet steel.

The opening of bids for supplying machinery and material for use at the New York Navy Yard resulted in the submission of lowest bids in the several classes as follows: For an 800-pound steam hammer, single frame, with adjustable guides the lowest bidder was Bement, Miles & Co., and the bid $895. For eight hand-operated traveling cranes of 10,000 pounds capacity each the lowest bidder was the North Penn Iron Co. and the bid submitted was $8,000. For four electrically operated traveling cranes the lowest bidder was the Niles-Bement-Pond Co., and the bid submitted was $13,100.

### Obituary.

Gen. Mendal Churchill, who, for a number of years, was connected with iron manufacture in Ohio, died Oct. 21, at Coronado, near San Diego, Cal., aged 73 years. Gen. Churchill was born in Rome, Lawrence county, O., July 23, 1829. In 1850 he became storekeeper at Keystone furnace and later its manager. He served with honor and distinction in the Union army from 1861 to 1864, and then returned to Ohio. He managed a blast furnace at Logan, O., for a year and afterwards was connected for a number of years with the Ohio Iron Co. and lived at Zanesville. He retired from business in 1891 and thereafter spent much time in traveling and at Coronado.

### Steel Corporation Earnings and Tonnage.

At the monthly meeting of the United States Steel Corporation directors in New York, Nov. 11, there was submitted the appended comparative statement of conditions: Cash on hand, Nov. 1, 1901, $63,961,973; Nov. 1, 1902, $64,748,966. Cash assets Oct. 1, 1901, $201,842,384; Oct. 1, 1902, $222,629,350. Current liabilities Oct. 1, 1901, $77,693,371; Oct. 1, 1902, $65,142,457. Increase in net assets, $33,337,880. Earnings: September and October, 1901, $21,478,585; September and October, 1902, $24,130,346. Orders entered since last board meeting, 934,050 tons. Shipments, 831,341 tons. Unfilled orders on hand Nov. 1, 1901, 2,831,592 tons; Nov. 1, 1902, 4,968,002 tons.

Concerning the report that the two blast furnaces now in course of construction by the Buffalo & Susquehanna Railroad Co. at Buffalo will be supplemented by two furnaces of equal size, we are officially advised that while it is possible that two additional furnaces will be erected, the two now being constructed will be put in operation before the others are begun. The company has no plans at present for the construction of the two additional furnaces and the matter will probably be deferred for at least two or three years.

### PERSONAL.

L. Muench, in charge of the sales department of the American Can Co., has been elected first vice president to succeed the late H. F. Akin.

George G. Blackwell, senior member of the firm of Blackwell & Sons, Liverpool, Eng., was in Cleveland and Pittsburg this week. He arrived in Canada several weeks ago from England and will remain in this country for some time looking after his company's large interests here.

An official inspection of the plant of the Lackawanna Steel Co., Buffalo, N. Y., was made recently by officials and stockholders of the company. The party included President Walter Scranton, Vice President Moses Taylor, George E. Marechant, H. R. Bishop, P. R. Pyne, B. H. Buckingham, J. R. Faring, O. J. Jennings, H. R. Bishop, Jr., A. Iselin, Jr., H. A. C. Taylor, Jr., Samuel Mather, E. Iselin and Caleb Gowen.

C. A. Eastman, of Anderson, Ind., has been appointed manager of the Peru Steel Casting Co., Peru, Ind.

Arthur P. Prier has resigned as president of the National Brass Mfg. Co., of Kansas City, Kas., and has been succeeded by A. C. Hunt.

William Kincaid, superintendent of the threading department of the National plant of the National Tube Co., McKeesport, Pa., has resigned to become general superintendent of the Susquehanna Iron & Steel Co.'s new tube plant at Columbia, Pa.

Kurtz Schmidtz, a steel manufacturer of Hamburg, Germany; M. Sellers, an electrical engineer of Germany, and Leo Bodner, of Zurich, Switzerland, were in Pittsburg last week inspecting iron and steel plants.

Norton P. Otis, chairman of the board of directors of the Otis Elevator Co., has been elected to Congress on the Republican ticket from the 19th Congressional district of New York.

J. J. Beck, superintendent of the Niles mills of the American Sheet Steel Co., has been chosen the successor of William Kent, superintendent of the Youngstown Iron Sheet & Tube Co.

Secretary J. W. Young, of the Allis-Chalmers Co., will become manager of the company's London office. He will be succeeded by Third Vice President Seaman.

R. L. Windholz who for some time past has been officially connected with the Speed Changing Pulley Co., of Indianapolis, but originally manager of the machinery department of the E. A. Kinsey Co., Cincinnati, has severed his connection with the pulley company and returned to the Cincinnati concern.

Charles Colcock Jones, of Marquette, Mich., has resigned as consulting engineer to E. N. Breitung, and manager of the Breitung Estate on the Marquette Range and in Canada, to accept a position on the staff of Lewis T. Wright, general manager of the Mountain Copper Co., Keswick, Shasta Co., Cal. For the past three years Mr. Jones has been engaged in exploring the lands of the Breitung Iron Co., 20 miles from Sault Ste. Marie, Ont., on the Algoma Central Railway, and the property of the Breitung Estate at Negaunee, Mich. The Breitung Iron Co. will shortly begin shipments of Bessemer ore to the Clergue furnaces at the "Soo;" and at the Breitung Hematite Mining Co.'s shaft, now sinking at Negaumee, it is proposed to be ready for shipments early in the coming year.

The cast iron committee for the United States, of the International Society for Testing Materials, which held its convention at Budapesth last year, has organized by electing Walter Wood, of R. D. Wood & Co., Philadelphia, chairman, and as secretary, Dr. Richard Moldenke, secretary of the American Foundrymen's Association.

The Findlay Axe & Tool Co., whose increase of capital stock from $12,000 to $40,000 has been noticed, will occupy the building at Findlay, Ohio, formerly used as a wire nail mill by the Salem Wire & Nail Co. The company will employ about 300 men.

Wm. Ganschow, Chicago, a manufacturer of machinery, will erect a four-story building, 40x101 feet, mill construction, at a cost of $35,000.

## THE FOUNDRYMEN'S ASSOCIATION.

The eleventh annual meeting of the Foundrymen's Association was held on Wednesday evening, Nov. 5, at the Manufacturers' Club, in Philadelphia. The following were present, being from Philadelphia, except where otherwise indicated: H. O. Evans, Thos. Devlin Mfg. Co.; Mark Barr, Linotype Co., London, Eng.; J. Thompson, J. Thompson & Co.; Benj. Holt and Wm. Cannon, Camden Fdy. Co., Camden, N. J.; O. J. Ward, Howe Scale Co.; A. Belfield, H. Belfield & Co.; F. C. Price, E. J. Etting & Co.; Paul Vanfleet, I. A. Sheppard & Co.; Harry Taylor, Pettinos Bros., Bethlehem, Pa.; A. A. Miller, *Iron Age*; W. H. Ridgway, Craig-Ridgway & Son Co., Coatesville, Pa.; J. S. Hibbs, J. W. Paxson Co.; Nicholas Mager, Bethlehem Steel Co., S. Bethlehem, Pa.; J. Hy. Pepper, *The Iron Trade Review*; J. J. McCrystal, Girard Iron Works; P. D. Wannor, Reading Foundry Co., Reading, Pa.; Thos. I. Rankin, Abram Cox Stove Co.; Jas. S. Stirling, Harlan & Hollingsworth, Wilmington, Del.; D. O. Moore, S. L. Moore & Sons Co., Elizabethport, N. J.; Jesse L. Jones, Wm. Cramp & Son Ship & Engine Building Co.; Wm. A. Taylor, Cramp Brass Works; Earle Mark and W. P. Cunningham, A. & P. Roberts Co.; Robt. Stinson, Delaware River Iron Ship & Engine Building Works, Chester, Pa.; Jas. B. Strain, Robt. Wetherill & Co., Chester, Pa.; Wm. Wisner, R. S. Newbold & Son Co., Norristown, Pa.; H. F. Fisher, A. B. Farquhar Co., York, Pa.; C. D. Matthews, Camden Iron Works, Camden, N. J.; F. Cooper Pullman, J. Wesley Pullman; E. E. Brown, A. D. Wallace and C. R. Brown, of E. E. Brown & Co.; R. C. Oliphant and M. S. Greenwood, Trenton National Iron Co., Trenton, N. J.; S. G. Flagg, S. G. Flagg & Co.; Wm. Ayton, Abram Cox Stove Co.; Thos. J. Kelley, Thomas, Roberts Stevenson Co.; Howard Evans and J. S. Hibbs, J. W. Paxson Co.; Frank S. Etting, of E. J. Etting; Geo. C. Davis.

The treasurer, Josiah Thompson, reported a balance in the treasury of $2,075, and all bills paid.

The committee on nominations for officers for the ensuing year made its report, and the gentlemen named in the report were unanimously elected. The new officers are as follows: President, Thomas Devlin, of Thos. Devlin & Co., Philadelphia; vice president, Jas. S. Stirling, of the Harlan & Hollingsworth plant of the American Shipbuilding Co., Wilmington, Del.; treasurer, Josiah Thompson, of J. Thompson & Co., Philadelphia; secretary, Howard Evans, of the J. W. Paxson Co., Philadelphia. Executive committee: D. G. Moore, of S. L. Moore & Sons Co., Elizabethport, N. J.; Thomas M. Eynon, of the Eynon-Evans Co., Philadelphia; E. E. Brown, of E. E. Brown & Co., Philadelphia; R. C. Oliphant, of the Trenton Malleable Iron Co., Trenton, N. J.; and Wm. Hanson, of the Pennsylvania Iron Works, Philadelphia.

Under the head of new business there was a discussion on "The Melting Ratio." The subject was opened by the reading of papers by Arch. M. Loudon, of New York, and Dr. Moldenke, secretary of the American Foundrymen's Association, the papers having appeared in the journal of that association.

D. G. Moore.—About six or seven years ago I had a little difference of opinion with another foundryman as to the melting ratio in our cupolas. At that time we were melting about 25 tons per day. I made the statement that we were melting about 10 to 1. We used two thirds pig iron and one third scrap. We had both coke and iron weighed carefully each day, and at the end of about sixty days we drew comparisons, and demonstrated that our ratio was about 9 to 1. I believe that is what we are doing today. We must have hot iron, and I think we could melt at the ratio of 11 or 12 to 1 if we could use a cold iron. The coke we then used was of a quality equal to Frick's. I am speaking of our green sand foundry. In the loam foundry we are not doing so well. The cupola is lined to about 60 inches diameter. In the bed we use 500 lbs. to 600 lbs. of coke. We take the weights every working day. Anybody melting 9 to 1 with 72-hour coke on our class of machinery castings is getting pretty good results.

H. O. Evans.—I have been surprised at the number of different opinions collected in regard to the operation of cupolas. I would like to know how many founders here actually weigh, on scales, every heat run.

Mr. Moore.—We weigh our irons and everything that goes into the cupola; and what makes me think that our weighing is correct is the fact that after running for four months on the weighing plan we had occasion to take stock, and the iron in the yard, with the iron taken to the cupolas, balanced so closely that there was a difference of four and a half tons only in the total weight of the iron going into the yard.

J. S. Stirling.—A record of cupola operations is a very important thing. Everything going into our cupola is weighed, and it is our custom, on account of the tuyeres being low, to use steamboat coal for the bed, and coke on that. We must have good hot iron. For the past three or four years our average melting ratio has been about 7¼ to 1, and that on heats which would average about 10 tons. One condition confronting us in running large heats is that we cannot keep the blast on continually.

Mr. Moore.—I forgot to say that in the 25 tons we melt we frequently take out about four grades of iron. You can readily understand that in that case we use more fuel than we do on a straight heat. In separating the charges our ratio is run up to a high point. Running on one kind of iron we can probably melt at 11 to 1.

T. I. Rankin.—In stove practice we have not been able to melt better than 8 down to 6.8 to 1. It is, of course, necessary to have very hot iron to run light castings. Anyone used to heavy work can scarcely imagine running a piece of work, say 35 inches square, which would caliper perhaps only ⅛ inch. It goes without saying that we must have very hot iron. In regard to getting accurate weights it seems to me that where proper facilities are arranged for there should be very little trouble experienced. At one of our plants the scale is in the yard and the barrows used in charging have the tare marked on the sides. As they are run onto the scale a little manipulation of the scale beams gives the weight almost instantly.

Mr. Jones, after speaking of the cupola practice in plants where the Bessemer process is in use, advocated the placing of the charging doors in a foundry cupola as near to the level of the platform as possible.

Mr. Ridgway.—The question of governing the labor part of the matter is perhaps a curious one with us. Instead of using scales we have an unwritten law that a man shall take so many shovels full for the bed, and so many for the other stages of the heat. When the man in the office has nothing to do, he has the shovels put on the scales and we make our estimates accordingly, the results being pretty accurate. We used to think we were getting a ratio of 10 to 1, but since the fuel problem disturbed us we do not say anything about it. We are using anything that in every way resembles fuel. I do not think any one here will venture to quote statistics on the quality of fuel we are obliged to use just now.

Stanley G. Flagg, Jr.—I have noticed the figures given by English foundrymen and I am inclined to think that they have omitted the weight of the bed of fuel used in the cupola.

E. E. Brown.—Speaking from experience I can say that the ratio of melting has been a question which has been presented to the sash weight manufacturers as a body, and no one cared to make a positive statement on the subject. Every man seemed to have a different idea, and the conclusions arrived at would not warrant me in quoting them.

After adjournment a lunch was served and an hour or two pleasantly spent.

## Harrison-Walker Refractories Co.

(Special Telegram.)

PITTSBURG, Pa., Nov. 12.—At a meeting of the stockholders of the Harbison-Walker Refractories Co., held here yesterday, the capital stock was increased from $25,350,000 to $27,600,000, the proceeds of the new issue to go to the purchase of additional brick plants which have an annual output of 45,000,000 brick. The purchase of these properties will be closed during the next two weeks. Of the increase in stock, $750,000 was added to the 6 percent cumulative preferred, which has been $8,850,000 and the remainder was issued in common, swelling the amount of the latter issue from $16,500,000 to $18,000,000. The company also has a bond issue amounting to $3,500,000, making the total outstanding securities $31,100,000.

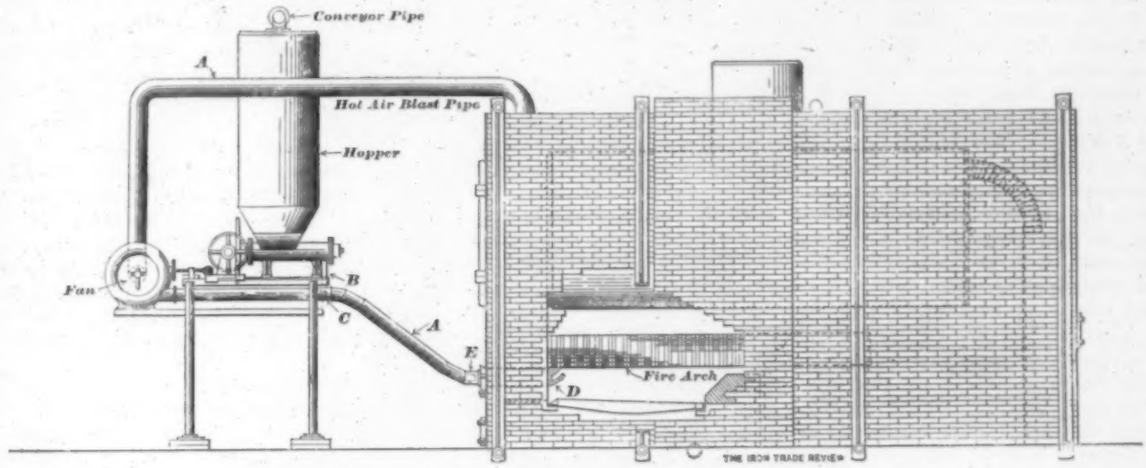
## A COAL DUST BURNING SYSTEM.

The C. O. Bartlett & Snow Co., of Cleveland, has perfected and put into practical operation a system for burning soft coal which is having consideration from users of soft coal. These claims are made for the system: A perfect combustion, and incidentally no black smoke. A saving of 25 percent in the amount of coal used. No cinders and scarcely any ashes. It reuires no change in the grates used under any ordinary boiler to install this system, and in case of accident coal can be fed at the furnace doors as before. The supply of feed can be changed by turning a hand wheel. The doors are not opened, thus avoiding all undue contraction and expansion caused by the admission of cold air through the furnace doors. No fireman is required.

The essentials of perfect combustion are thus stated by the firm: The coal must be of uniform size. It is impossible to get the same results from burning a chunk of coal the size of a man's head and another piece the size of a pea. The coal must be made of even size before perfect combustion can be had. In the second place, the coal must be of equal moisture. The same result cannot be obtained from burnings coals of different moisture. Run of mine coal containing 5 to 6 percent moisture will not give the same combustion as slack coal containing 10 to 12 percent moisture. The idea of wetting coal before putting it in the furnace or admitting steam jets under a boiler is claimed to be a mistake. The third point is that powdered coal must be burnt in suspension. If it is swept or pushed into the furnace the heavy particles will fall to the bottom and become a solid clinker which is objectionable and almost impossible to get out, but by burning in suspension absolute combustion is obtained.

With these three important features in view the company has developed and is now working a system using the cheapest kind of slack coal and drying to 2 percent moisture, then grinding to 80 mesh fine, which results in coal dust. The Rowe feeder system is employed, as illustrated in the accompanying cut, and is described as follows: The ground coal is stored in an iron hopper or tank above or near the boiler. An air pipe A is connected with the feeder spout at the furnace, and above the boiler, in the breeching or stack, a blower fan is attached to this pipe of sufficient size to furnish the necessary air for burning the coal dust. The coal is conveyed by a special conveyor from the bottom of the storage bin to a spout B. The speed of this conveyor controls the amount of coal used and can be changed at a moment's notice by turning a hand wheel, feeding faster or slower according to the amount of fuel desired. From the conveyor the coal is fed direct to the air spout A. There is a nozzle C on the inside of the air spout which concentrates the air just as it strikes the coal as it comes down from the conveyor, insuring a thorough mixture of the coal with the air and at the same time preventing any danger of clogging. The coal is caught by the current of air and blown along the air passage to the furnace spout. Just before entering this spout there is another nozzle E which again concentrates and mixes the air with the dust just before it enters the feed spout D. This feed spout is made of cast iron and has a semicircular opening or mouth so as to spray the coal dust up and against the arch wall, where it is ignited and burned in suspension. This spout is covered with fire brick for protection and the current of air continually passing through it also protects it from burning out. There are slides or valves on the different places in the air pipe so as to admit just enough air to get perfect combustion, all of which are under the complete control of the operator.

The plan described is said to be superior to feeding the coal in any other way, for the following reasons: If the coal is pushed in by a brush or otherwise it will fall to the bottom and gradually clinker until it becomes a solid mass and will have to be broken up with a chisel at the end of each day's firing. It was found that the only practical way to burn the coal after being dried and powdered is in suspension and this is held to be very important indeed. If it can be thrown up with a draught it will burn while in suspension and there will be no clinker. Of course it is absolutely necessary that just the proper amount of air must be used with the coal to get perfect combustion. This is a matter that can be controlled by having a valve in the pipe so that more or less air can be fed in with the coal to be burned.




COAL DUST BURNING SYSTEM.

The general adoption of this or similar system has been impeded doubtless by the fact that on account of the very cheap price of coal many of the manufacturers have been somewhat slow to take an interest in the subject, but now with coal getting high, everyone wishes to make a saving and again laws are becoming somewhat strict and greater restrictions are probable in the future in the campaign against smoke. There will be some obstacles to overcome. For instance, a hotel or apartment house having a 100 h. p. boiler, would not feel like putting in a whole drying and pulverizing system, but this may be obviated by putting in the burning device which will not cost more than a stoker system. The C. O. Bartlett & Snow Co. has already made arrangements with a firm in Cleveland by which powdered coal can be delivered to any central part of the city for $3.50 a ton which is now about the usual price paid and the saving in the amount of coal will be at least 20 percent and probably 25 to 30 percent.

It has been said that there is an element of danger in storing coal dust, but it will not be necessary to store it in large quantities. The coal can be dried in large lots and then pulverized as it is used, so as not to keep a large amount of powdered coal on hand.

The progress of this movement will be watched with considerable interest as an engineering expedient and will have the best wishes of the many, engineers and others, who hope for a clear atmosphere as much as attractive and healthful homes and workshops.

## THE LUNKENHEIMER CO.'S NEW PLANT.

The Lunkenheimer Co., of Cincinnati, manufacturer of brass and iron goods and specialties for engines, boilers, etc., such as brass and iron valves, injectors, lubricators, etc., formally opened its new works to about three thousand visitors and friends on Oct. 25, and is now moving from the old quarters on Eighth St. The five new buildings represent an investment of over $300,000 and consist of the main building occupied by the brass department with adjoining buildings for the iron department, brass foundry, power and office buildings; all are of pressed brick and steel construction of modern type. They occupy about 3 acres of ground and have switching facilities; 3 acres additional ground provide for future extensions.

These factories are located near Brighton Station in a suburb called Fairmount, within 2 miles of the center of the city. Many new and interesting features are noticeable. The main building, 130x180 feet, is of gallery style construction with a central area 30x80 feet. It is three stories high and built so that three stories can be added. The elevators and iron stair cases are arranged within the center area. All buildings are designed for 300 pounds per square foot floor load. The roofs are glass and clay tiling of Ludowici interlocking type. A novel feature in the main building is the heating system, inasmuch as the hot air travels through 14 large hollow columns which support the floors around the area in the center of the building. These columns have openings on each floor to distribute the air. The bases of the columns are connected with a huge fan by means of tunnels under the basement floor. By this construction the usual galvanized iron air pipes are avoided. The type of window used is novel. There is a blind arrangement that will be of great advantage in the summer weather. The foundry is equipped with modern devices, such as overhead track system for carrying material, smelting furnaces burning crude oil and many pneumatic appliances. The general distribution of power throughout the buildings is of the latest design. The source of energy is a 300-h. p. compound engine which drives a 340-k. w., three phase, 220-volt, General Electric, alternating current dynamo. The current is led out from a switchboard to the different parts of the buildings where suitable motors, principally attached to the ceiling, are provided to drive the various lines of shafting. These motors are of the Westinghouse and General Electric induction type without commutators or brushes. The power from the motors to the shafts is transmitted through the Renold silent chain gear, which permits of a compact arrangement without noise and friction, thus dispensing with leather belts.

The engine room is provided with a large cross compound two stage, Laidlaw-Dunn-Gordon air compressor, which supplies compressed air throughout shops and foundry for driving pneumatic tools, hoists, etc. The boilers are of the Babcock & Wilcox pattern with automatic stokers. The engine room, the floor of which is laid in mosaic tiling, is considered one of the handsomest in the country; the company manufacturing engine and boiler fittings aimed to have a power plant strictly up-to-date and of handsome appearance. Bell telephones connect all departments to a central exchange which connects with the city lines.

The illumination is furnished by the Nernst lamp. This lamp has been going through a process of development for a number of years and is now being adopted in this and many foreign countries. The light differs from that produced by any other artificial means, as it more closely resembles sun-light than gas, incandescent or arc light, and articles exhibited under it have their true color value. Owing to the arrangement of the lamps, the distribution of the light is even and without shadows. The lamps are so arranged that sufficient illumination is secured without providing each operator with an individual light.

The office building is a three-story press brick structure 50x80 feet, with modern equipment, the second floor being occupied by the draughting and engineering departments, the third by the advertising department, as well as a laboratory and photograph gallery.

The business was founded in 1862 by the late Frederick Lunkenheimer and has grown to large proportions, now employing over 700 men. With increased facilities the company expect to extend their line and take up many new engineering specialties. The company's trade is domestic and foreign, being distributed largely through jobbers; they also have a branch store in London, Eng., and an office in New York City. The company has placed many orders for additional tools and machinery, which are being installed in the new quarters.

## PROPOSED AXE AND TOOL CONSOLIDATION.

The promoters of a consolidation of leading manufacturers of axes and certain lines of edge tools announce that arrangements have practically been completed for the incorporation of the new company, to be known as the International Axe & Tool Co., with a capital of $30,000,000, and bonds amounting to about $10,000,000. It is intimated that some steel manufacturers from whom the new company will purchase material, may be affiliated with it. It is said the new enterprise will be incorporated under the laws of New Jersey in the course of a few weeks. It is expected that these companies will be represented: American Axe & Tool Co., New York; Kelly Axe Mfg. Co., Alexandria, Ind.; Mann Edge Tool Co., Lewiston, Pa.; James H. Mann, Lewistown, Pa.; Romer Axe Co., Dunkirk, N. Y.; Warren Axe & Tool Co., Warren, Pa.; Standard Axe & Tool Co., Ridgway, Pa.; United States Edge Tool Co., Cattaraugus, N. Y.; Indiana Edge Tool Co., Gas City, Ind.; Fayette R. Plumb, Inc., Philadelphia, Pa.; Iron City Tool Works, Pittsburg, Pa.; Warwood Tool Co., Wheeling, W. Va.; Peck Edge Tool Co., Cohoes, N. Y.; Norton Tool Co., Cleveland; Winsted Mfg. Co., Winsted, Conn.; Eagle Scythe Co., Winsted, Conn.; Turner, Day & Woolworth Handle Co., Louisville, Ky.; Southern Handle Co., Huntsville, Ala.; Dunn Edge Tool Co., Oakland, Me.; David Wadsworth & Son, Auburn, N. Y.; Independent Stone Co., Cleveland, O.; Klein-Logan Co., Pittsburg, Pa.; Central Tool Co., Jonesboro, Ind.; Evansville Tool Works, Evansville, Ind.; Welland Vale Mfg. Co., St. Catherines, Ont.

The party of Englishmen now in this country with Alfred Moseley to study American industrial development, will leave New York today, Thursday, Nov. 13. Their first stop will be at Schenectady, where the locomotive building plant and electrical works will be visited, and then the party will proceed to Niagara Falls, Buffalo, Cleveland, Chicago, Cincinnati, Pittsburg, Washington and Philadelphia, returning to New York in time to attend the meeting of the Civic Federation on Dec. 8. After that date the delegation will divide into sections to study special lines of industrial progress. There are 30 persons in the party.

Negotiations are now under way which may lead to the establishment of extensive iron and steel works near Toronto, Canada. A company whose name is not disclosed is said to be negotiating for a site of 15 acres near the city and proposes to expend $150,000 in buildings as a starter. The company is understood to be closely associated with the Dominion Steel & Iron Co., from which it would purchase steel billets.

The St. Paul Roofing, Cornice & Ornament Co., of St. Paul, Minn., has a series of catalogues in regard to steel ceilings and interior finish, zinc and copper ornaments, steel fronts, portable and fireproof buildings, metal window frames, sash, doors and casings. These are profusely illustrated with halftones of commendable quality.

The Mitchell Wheel Co., Miamisburg, O., recently incorporated, is putting up a plant to manufacture vehicle wheels. The building will be 350x115 feet. The company is in the market for one 200-h. p. engine, two 100-h. p. boilers a system of fans for drying and heating, dust arrestors, pipes, etc.

## WORKERS' TRIBUTE TO PRESIDENT McMURTRY.

In our issue of Oct. 9 an account was given of the presentation of a massive punch bowl of highly artistic workmanship to President McMurtry, of the American Sheet Steel Co., the donors being the 3,200 employes of the company's Kiskiminetas Valley sheet mills. We are indebted to the *Jewelers' Circular*, of New York, for the accompanying photographic reproduction of this gift, which is a rare specimen of artistic chasing and modeling. The bowl is 16 inches high, 18½ inches in diameter and contains 508 ounces of sterling silver, with a capacity of 20 quarts. The external relief work on the bowl, with its medallions and wreaths of laurel and ivy, the richly carved columns and the miniature sheet mill, with figures of workmen putting a sheet through the rolls, represent the highest skill of the house of Tiffany.

## TRADE PUBLICATIONS.

Circular No. 6 describes various electric driving mechanisms furnished with the Nos. 1, 2 and 3 radial drills manufactured by the Bickford Drill & Tool Co., of Cincinnati. The pamphlet contains some general comments for the

AN ELABORATE PUNCH BOWL.

information of such of the agents or customers as may wish to learn the opinion of the makers on the relative merits of several methods of electricity operating this line of machine tools.

The distribution of light from the Nernst lamp is the subject of a neat pamphlet prepared by the Nernst Lamp Co., of Pittsburg. The matter of light distribution, both natural and artificial, is so important in any business that this booklet is well worth a careful reading aside from the reference to the Nernst lamp. We are so accustomed to the electric drop and side lights as well as the proximity of the desk light that a criticism which roundly condemns these forms of illumination will have a novel interest at least.

The Billings & Spencer Co., of Hartford, Conn., has issued a circular of lathe, clamp and die dogs. The sizes, weights and prices are given of a large variety of these tools.

The recent catalogue of the Acme Machinery Co., of Cleveland, contains 141 pages, standard 6x9 inches, and is freely illustrated with bolt cutters, nut tappers, bolt heading, rivet heading, upsetting and forging machines. There are quite a number of practical suggestions that are the evident outcome of years of experience in regard to the making, recutting and grinding of dies and a number of other items which will give the catalogue many chances of a longer life as a work of useful reference.

The Hisey portable electrically driven grinder, manufactured by the Hisey-Wolf Machine Co., of Cincinnati, is described in a small catalogue which illustrates the machine applied to a planer head, the tool post of a lathe as well as mounted on the vise of a milling machine. The machine is made in different sizes for a wide range of work; the standard machine being wound for either 110 or 220 volts, direct current, but when required the machine is wound for 75 and upwards to 250 volts.

"A Short Story of Alfried Krupp" is the title of the well written biography contained in the last issue of the circulars sent out by Wyman & Gordon, makers of drop forgings, of Worcester, Mass. This publication maintains the high standard of the previous efforts, some of which are already out of print. The booklet, we understand, is for gratuitous distribution.

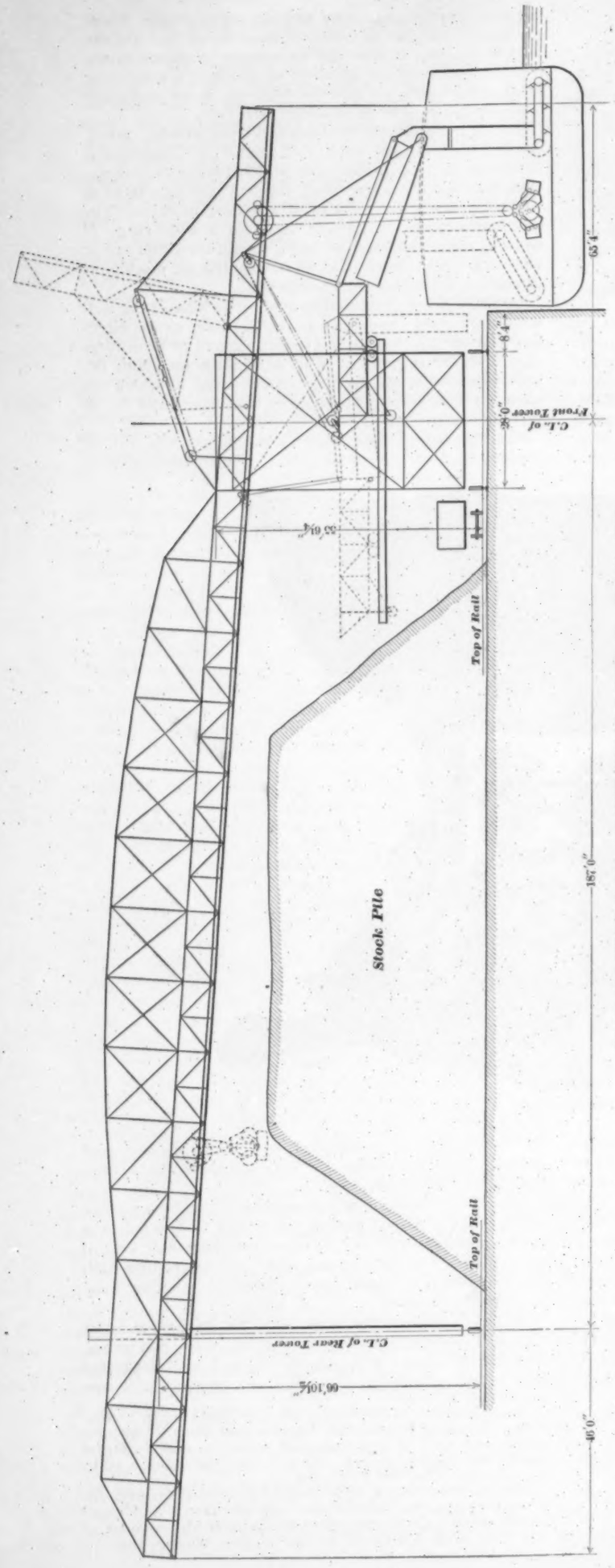
The "Multiplex" plate, made by the Berger Mfg. Co., of Canton, O., is exploited in a neat circular descriptive of the treatment of sheet steel by which it acquires increased strength and is thereby the better qualified for a firm, light and fireproof flooring.

The use of Robins belt conveyors for carrying away tailings and waste at mining operations is detailed in a recent publication of the Robins Conveying Belt Co., of New York. The circular has three very interesting halftones showing an installation capable of handling some 1,200 tons per hour.

General catalogue No. 7 of the C. O. Bartlett & Snow Co., of Cleveland, is a production of 288 pages, 6x9 inches. The subject matter is thoroughly indexed, well illustrated and covers elevating, conveying and general mill machinery of all kinds.

The "Imperial" air compressors are discussed in a catalogue from the Rand Drill Co., of New York. The new styles and sizes of belt and gear driven as well as steam actuated compressors are reviewed with the aid of a number of most excellent halftones.

Several circulars of electrostatic ground detectors, enclosed alternating current 104 volt arc lamps and small direct current motors accompany the monthly calendar of the Fort Wayne Electric Works of Fort Wayne, Ind.




HULETT ORE UNLOADER FOR THE DETROIT IRON & STEEL CO., DELRAY, MICH.

## HULETT UNLOADING MACHINES FOR DETROIT.

The Detroit Iron & Steel Co. will install the Hulett automatic ore unloading machines at its new blast furnace plant at Delray, Mich., below Detroit, and the contract has been taken by the Webster, Camp & Lane Co., of Akron, the manufacturers of the Hulett unloaders. Some features not operative in just the same way at any of the lower lake docks have been introduced by Mr. Hulett in the plant to meet the special requirements at Delray. Boats of moderate capacity, say 4,000 tons, will be unloaded at these docks and the problem was to provide for the unloading of such a cargo in the daylight hours of a single day.

The plant will consist of two bridges of 196 feet span with 50 feet cantilever extended over the ore bins near the furnace and with a boom extending over the vessel. The unloaders will be electrically operated and provided with a Hulett two-part automatic bucket of 5 tons capacity suspended from a trolley. In operation the boom will be lowered over the boat in the usual way, and about 45 percent of the ore will be removed from the boat by the automatic bucket, this being the amount of ore that can be profitably taken out in this way. This ore will be taken back and dumped either into a railroad car near the front of the dock, or on to a stock pile, or it can be dumped into bin-filling cars on top of the bins under the cantilever, or it may be taken from stock pits to bin-filling cars by the same bucket.

To remove the balance of the ore from the boat a scraper device is provided. After the ore that is immediately under the hatch is removed, the scraper device is run out by a trolley to which is attached a boom. At the end of this boom is rotatively and pivotally connected a depending leg, at the bottom of which is pivotally connected a scraping device. This scraping device consists of sprocket wheels carrying a sprocket chain and to this chain are attached the scrapers.

The machinery for driving these scrapers consists of a motor, mounted in the scraper leg, and the operator has his controlling levers and platform in this same scraper leg. He, being below the decks of the boat, is able to see his work. He has also control of the moving of the trolley in and out and of the hoisting and rotating of the leg. In operation he runs the scraper out, lowers it through the deck of the boat and swings it over the ore of the boat. He releases the outer end of the scraper until it rests on the pile of ore. As the scraper starts it draws the ore out from under the deck of the boat into a pile immediately under the hatch. As the operator can travel the scraper in and out and also rotate it, he commands the entire quantity of ore in an ordinary boat, excepting a small amount which will require one or two men to a machine to clean up and shovel within the reach of the scraper.

When the automatic bucket is working on the end of the hatch nearest to the dock, the scraper is working on the outer end of this hatch, the scraper girders being wide enough to permit of the bucket passing through; and when the scraper is working on the end of the hatch nearest to the dock, the automatic bucket passes over the top and is working on the end of the hatch farthest from the dock. By this arrangement the scraper and automatic bucket can work in one hatch at the same time without interfering with each other, and all of the ore can be removed from a boat with the help of one or two men at a machine. A speed of 200 tons per hour is anticipated for each of these machines.

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The new plant of the Washington Foundry, Washington, Pa., is now in operation.

# The Plant of the Alliance Machine Co.

Some six months ago the site of the present Alliance Machine Co. plant at Alliance, O., was a wheat field and the shops now in operation on double turn are a striking commentary on the energy and skill which in so short a time have brought over 200 workmen together in an establishment of the dimensions indicated in the accompanying illustrations. Ground was not broken for the building until March 25 of this year and on June 18 the plant was in operation on single turn, followed by double turn three weeks later. The plant stands on a 15-acre site which is located on the C. & P. R. R. just inside the city limits and is connected by switching tracks with the main lines of the Pennsylvania R. R. and the Lake Erie, Alliance & Wheeling R. R. thus affording excellent shipping facilities. The railroad tracks enter the north end of the building under cover and the tracks are depressed so that the floors of the cars are on a level with the main floor of the shop.

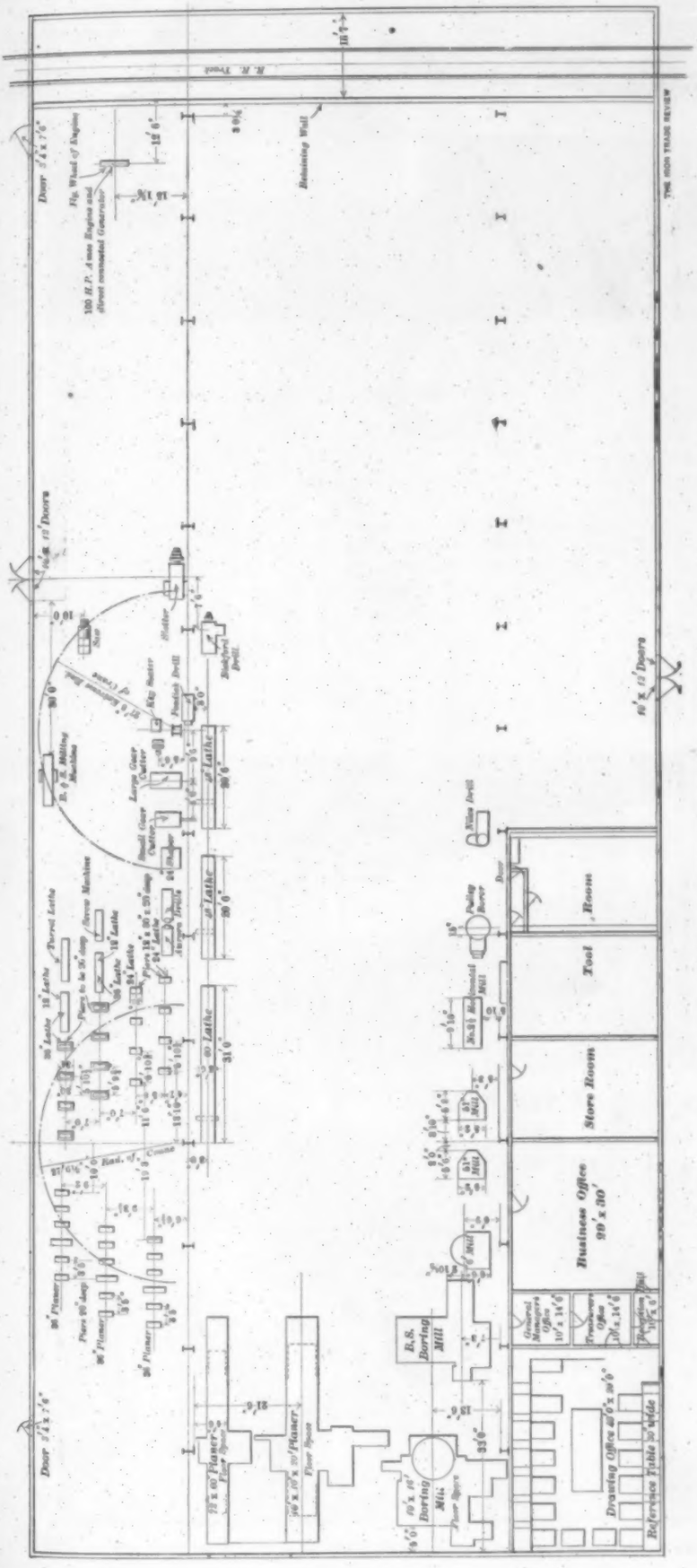


FIG. 1.—PLAN OF THE ALLIANCE MACHINE CO.'S MAIN SHOP.

The main building is 123x300 feet and contains some 300 tons of structural steel. The structure is one of the best lighted shops that the writer has had the pleasure of visiting; the shop being practically all glass above the sills which up to that point are brick. The main floor is used for erecting purposes and is equipped with a 30-ton electric traveling crane having a 60-foot span. The crane is provided with an auxiliary hoist of 5-ton capacity. There are also four 3-ton jib cranes under the lean-to having a depth under the hook of 10 feet. There is a smaller building 60x30x 30 feet, seen on the left of Fig. 2. This is employed as a blacksmith shop and boiler room. The present layout of the plant will allow of five additional buildings of the same size having a 37-foot alleyway between them. It is not the present intention of the company, however, to extend the plant at this time, although an office and a foundry building will in all probability be added early in the new year.

The size and location of the equipment are shown in Fig. 1 and the tools are all new and of heavy duty type, as the work is most exacting and of large dimensions as a general rule. Among the heavier tools are a 10x10x12-foot planer, a 6x10x 10-foot planer, a 16-foot boring mill, a 60-inch lathe, and a large horizontal mill of the Beaman & Smith design. The shop is provided with electric power obtained from a 100-h. p. automatic Ames engine, direct connected to an Elwell-Parker generator.

The company builds electric traveling cranes as well as a line of special electrically operated machinery for rolling mills and steel plants generally, hydraulic riveters, flangers, shears and punching machines, etc. The general manager, W. H. Purcell, has made this class of machinery his life work and the new designs embody many improvements suggested by his long experience.

Among the recent orders on the books of the company are the following: Five cranes, 10 to 50 tons, and 48 to 69½-foot span, for the Worth Bros Co.; one crane of 100 tons capacity and 52-foot span for the Bethlehem Steel Co.; one crane of 15 tons capacity and 53-foot span for the American Steel & Wire Co.; twelve cranes of from 15 to 50 tons capacity and from 37 to 94-foot span, for the Colorado Fuel & Iron Co.; four cranes of from 10 to 75 tons capacity and from 37 to 82-foot span for the Carnegie Steel Co.; nine cranes of from 5 to 10 tons capacity (including one 10-ton skull cracker crane), of from 64 to 76-foot

FIG. 2.—THE NEW PLANT OF THE ALLIANCE MACHINE CO.

span, for the Union Steel Co. In addition to these the company has built four cranes for its own use. Work is in progress, in addition to the above orders, on two traveling tables for a 36-inch beam mill at the Homestead Works of the Carnegie Steel Co. These are claimed to be the largest traveling tables ever designed and will have a capacity for carrying 25-inch beams weighing 100 pounds to the foot, from the hot beds to the finishing rolls. There are also in course of construction twelve rod-reeling machines for the Colorado Fuel & Iron Co.'s plant at Pueblo, Col. These machines were designed by the Garrett-Cromwell Engineering Co., of Cleveland, and will be used in the new mills of the above named company, which are now in process of erection.

The officers of the company are: W. C. Whitehead, president; M. S. Milbourn, treasurer, and W. H. Purcell, secretary and general manager.

## THE DE LAVAL STEAM TURBINE.*

BY STEPHEN L. SINCLAIR.

The steam engine may safely be said to have monopolized the greater share of human ingenuity, no other object in the entire range of human devices having had closer attention than the production of artificial movement from the vapor of boiling water.

The reciprocating engine of the present day, though ideal in its construction, is, however, imperfect as a heat motor, and the prospect for future improvement to this type is somewhat remote. The improvements since its invention, which may be said were commenced upon a scientific principle by James

*Paper read at a recent meeting of the Franklin Institute, Philadelphia.

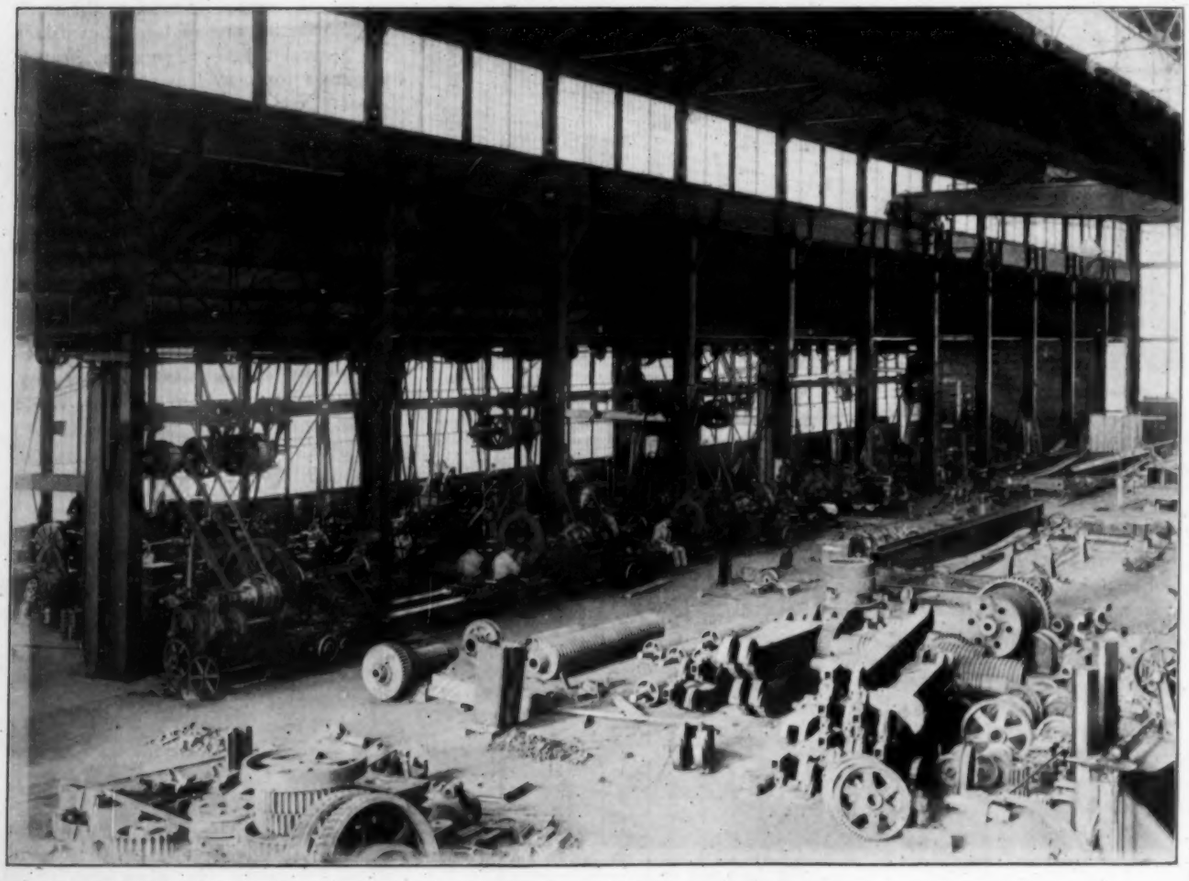

FIG. 3.—LATHE DEPARTMENT, ALLIANCE MACHINE CO.

Watt, have been merely mechanical; these improvements, however, having greatly increased its efficiency.

Since the thorough understanding of the science of steam engineering and the improbability of further improving the reciprocating engine, much has been done to devise means and methods to obtain a closer ideal for the mechanical utilization of heat energy than is possible with this type.

Among the devices largely worked upon, particularly during the past century, the rotary steam engine perhaps ranks foremost.

The close of the century, however, has seen the steam turbine as proposed by De Laval, brought to a state of perfection. In principle, it is not new, having been recorded in the year 120 B. C. when Hero wrote his celebrated work in which he described several forms of mechanical apparatus, the most important of which was a reaction steam turbine. This consisted of a spherical vessel mounted upon trunnions through which steam was admitted to the interior of the sphere, the steam issuing through openings tangental to the sphere, thereby causing rotation.

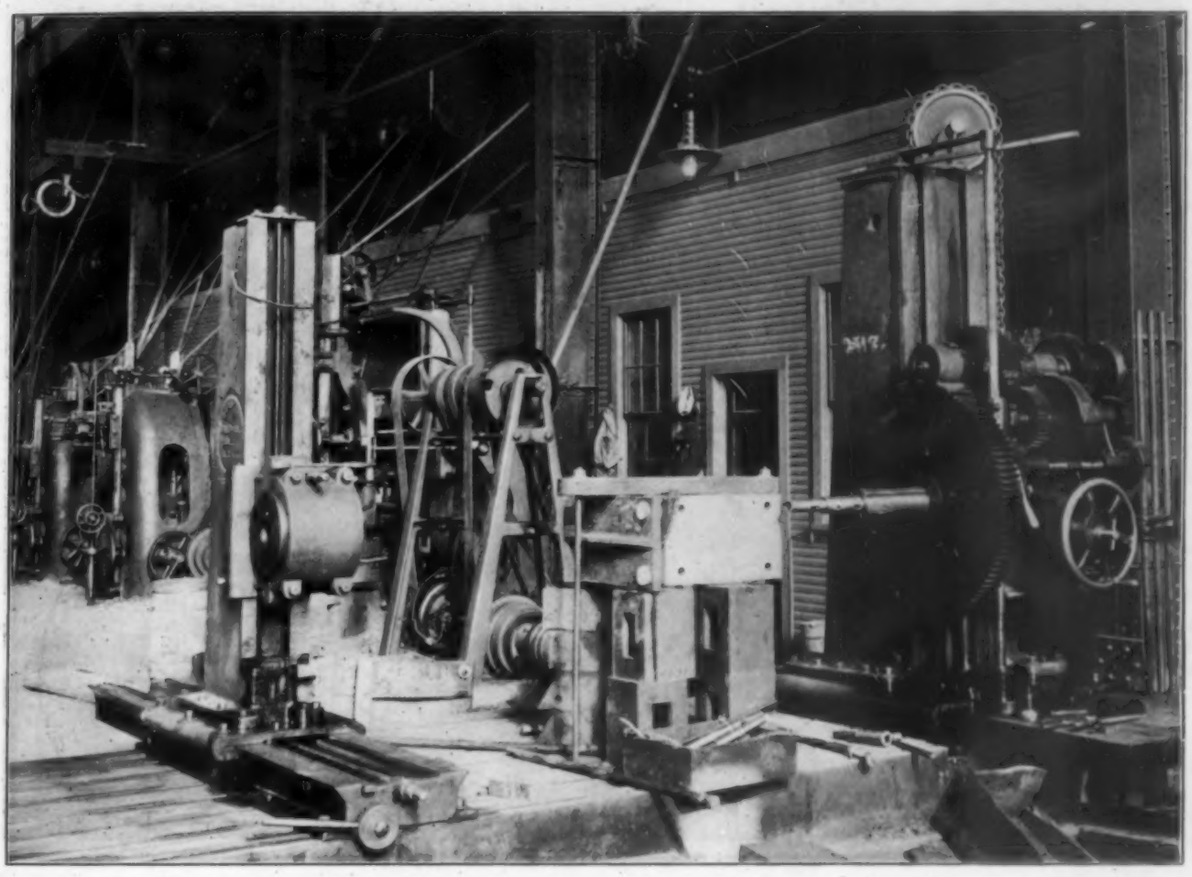

FIG. 4.—BORING DEPARTMENT, ALLIANCE MACHINCE CO.

In 1629, Branca employed a jet of steam to impinge upon blades of a wheel in a similar manner to the hydraulic motors of the Pelton type, the general principles of which are embodied in the De Laval steam turbine.

Thus, we note the lapse of many years during which little was accomplished in the atainment of perfection in this type of motor. This in a degree was undoubtedly due to the success attained by the reciprocating engine.

The directness of its energy conversion, and simplicity of construction are the great characteristics of the De Laval steam turbine, first successfully used in 1883 in connection with the shaft of the cream separator manufactured by the De Laval Separator Co. This, the first De Laval turbine, was to an extent imperfect, inasmuch as the complete expansion of the steam was not obtained.

This, however, De Laval finally accomplished. By the use of the diverging nozzle he obtained complete expansion of the steam and the conversion of its entire static energy into kinetic. Then the impossibility of using plain bearings and a rigid shaft on the turbine wheel, owing to the high speed, at times reaching 1,300 feet per second, necessitated further improvement, resulting in the invention and construction by De Laval of the flexible shaft. Simple in its construction, yet together with the nozzle heretofore mentioned undoubtedly constituting two of the most important inventions in steam engineering. To these inventions is largely due the present standing of the steam turbine in the foremost rank of heat motors.

Before closing this brief historical review, it is interesting to note that the latest development in steam engineering should be on the lines of the earliest form of engines recorded. The fundamental principle of the steam turbine in contradistinction to the reciprocating engine, lies in the fact that the latter does work by reason of the static expansive force of the steam acting behind a piston, while in the former case the work is developed by the kinetic energy of the steam expanding from one pressure to a lower.

The turbine wheel, the most important feature of the turbine, consists of a single disc of forged nickel steel, on the periphery of which the drop forged buckets are fitted. The buckets are secured in milled slots, and can be readily removed should occasion arise, without damage to the wheel. The steam, after passing the throttling valve, operated by a centrifugal governor, enters the steam chamber from which it is distributed to the various nozzles. These nozzles are so constructed as to be most satisfactory for the purpose, the interior being tapered, with the large end towards the buckets, thereby allowing the steam to fully expand and acquire velocity. In other words, the energy of the steam is entirely converted into mass and velocity before coming into contact with the turbine buckets.

As is well known, the velocity of steam increases when flowing through an orifice as the difference in pressure increases, only however, to a certain extent. The limit is reached when the lower pressure becomes less than 56 percent of the higher. The De Laval nozzle, is therefore so constructed as to take advantage of these conditions. The number of nozzles used vary with the size of the turbine, ranging from one to twelve. The nozzles are individually controlled by a valve, to permit one or more to be closed when the turbine is not fully loaded,

thereby adding to the economy on light loads. After passing through the nozzles, the steam is fully expanded and its kinetic energy is transferred through the buckets to the turbine wheel, exhausting through the chamber of the opposite side.

As will be noted from this brief description of obtaining the energy from the steam, the efficiency of the turbine will depend upon these results, and if they are sufficiently good the efficiency of the machine will be high. The present condition of the turbine would indicate that its efficiency is in excess of the reciprocating engine, particularly when operating condensing.

It is also a fact that if the efficiency is once obtained in the turbine it can be maintained indefinitely, owing to the absence of wearing parts under pressure, entirely eliminating the loss from leakage, and consequent decrease in economy.

Each nozzle accomplishes its work as perfectly when operating alone as when any other number of nozzles is in operation; therefore, the turbine does not change its economy per horse-power as does the reciprocating engine in which the steam consumption largely increases with every increase or decrease of the load. The efficiency of the turbine is practically the same from a 25 percent load to a 20 percent overload, which is of extreme importance when operating a large part of the time underloaded, so often the case in electric light plants. In other words, the fuel consumption of the turbine is proportionate to the amount of work being performed.

Owing to the high speed of the turbine wheel and shaft, gears are used to obtain speed for practical use. The gears are made of solid cast steel or with cast steel rims, and the teeth are set at an angle of 90 degrees to each other, thereby insuring smooth running, and preventing any tendency to end thrust. The strain upon the teeth is extremely small, owing to the high speed of the turbine, and gears after several years' operation have shown no appreciable wear. On the larger turbines, including turbine dynamos of over 50-k. w. capacity, two large gears are used on each side of the pinion.

With reference to operation, satisfactory results are obtained whether running condensing or non-condensing. As the difference in gain in economy when operating condensing is far in advance of the reciprocating engine, it is found in many cases, even in small sizes, to warrant the installation of a condenser and where scarcity of water exists, a cooling tower. The steam turbine is particularly well adapted for the use of superheated steam. The running parts are not subject to the full pressure of the steam which is as heretofore stated fully expanded in the nozzle before reaching the turbine wheel, and there are no rubbing parts requiring lubrication, or packing glands in contact with the steam.

The limit of pressure depends entirely upon the boilers, the turbine having been operated with a pressure of 3,000 pounds per square inch. The turbine is equipped with a simple and sensitive governor insuring good speed regulation and safe control under all conditions, also reducing the variation in speed to a minimum. The variation in angular velocity, which is so objectionable when operating alternating current generators in parallel, is entirely eliminated in the turbine, this constituting a very important feature.

FIG. 5.—ERECTING FLOOR, ALLIANCE MACHINE CO.

As to safety of operation, there is no danger from water, the only effect of a large amount of water entering the turbine being a slight decrease in speed until the water is disposed of.

Owing to the entire absence of oil in the turbine, the exhaust steam is especially adaptable for steam heating systems and also can be directly used after condensation for boiler feed purposes, this feature being of the utmost importance.

The durability of the turbine has been proven by the continued operation of thousands of machines in Europe which have shown no appreciable wear after years of constant service. There is every reason to believe that repairs to the turbine are extremely infrequent, being limited to the bearings, which can be readily replaced.

The De Laval steam turbine is particularly well adapted for direct connection and the successful operation of such units, which are built and tested in the shops, is assured. Practically no foundations are required for the turbine, owing to the entire absence of reciprocating motion and the perfect balance and light weight of all revolving parts. The dead weight of the machine alone having to be provided for makes the saving

in cost of foundations an important item. As compared with a reciprocating engine of equal capacity, the space and the weight of the turbine is extremely small. The dimensions of a 225 b. h. p. turbine are as follows: Length, 12 feet 10 inches; width, 5 feet 10 inches; height, 3 feet 9 inches; weight, 23,000 pounds.

With reference to steam consumption, Messrs. Dean and Main, of Boston, Mass., recently tested a 300 b. h. p. turbine, with the following results:

TABLE OF RELATIVE STEAM CONSUMPTIONS FOR DIFFERENT LOADS, PER BRAKE HORSEPOWER.

*Superheated Steam.*

| Nozzles Open. | Loads BHP. | Relative Loads. | Steam per BHP. | Increase for Diminishing Loads, referred to Maximum Load. | Average Superheat. |
|---|---|---|---|---|---|
| 8 | 352 h. p. | 100% | 13.94 lbs. | | 84° |
| 7 | 298 h. p. | 85% | 14.35 lbs. | 2.9% | 64° |
| 5 | 196 h. p. | 56% | 15.53 lbs. | 11.4% | 16° |

*Saturated Steam.*

| | | | | | |
|---|---|---|---|---|---|
| 8 | 333 h. p. | 100% | 15.17 lbs. | | |
| 7 | 285 h. p. | 86% | 15.56 lbs. | 2.6% | |
| 5 | 195 h. p. | 59% | 16.54 lbs. | 9.0% | |
| 3 | 119 h. p. | 36% | 16.40 lbs. | 8.1% | |

By comparing the results of the tests with superheated and saturated steam, the saving by the use of the former can be determined for the particular amount of superheating existing. As the tables show, the superheat steadily diminished as the load became lighter. This was caused by the fire and draft being very light with the lighter loads. The superheat for the 8-nozzle load averaged 84 degrees F., while that for the 5-nozzle load only averaged 16 degrees F. There is, therefore, scarcely any propriety in making a comparison for the effect of superheat, except with 8 and 7-nozzle loads. Copies of the above test in detail may be obtained from the De Laval Steam Turbine Co., New York, or the D'Olier Engineering Co., Philadelphia. The De Laval Steam Turbine Co. also manufactures centrifugal pumps, which constitute a large portion of their output.

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The United Shoe Machinery Co., of Boston, will erect an immense plant at Beverly, Mass., largely modeled on the lines of that of the National Cash Register Co., at Dayton, O. The plant will consist of an administration building, three stories, approximately 60 by 80 feet; two parallel main manufacturing buildings, approximately 600 by 60 feet each, three stories and a basement; a storage building, estimated at from 300 to 400 feet long, 60 feet wide, three stories and a basement; a drop forge, blacksmith, die sinking and hardening plant, one story, approximately 60 by 220 feet; a foundry with a probable capacity of 20 tons per day, requiring 72,000 square feet; a central power plant, capable of producing from 1,500 to 1,800 horsepower; giving a total floor area of a little more than 10 acres. Industrial and underground railways will connect the various buildings. The whole plant will probably be electrically driven. It is intended to put the elevators and stairs in the wings and to build fire proof vaults extending from the bottom of the building to the top. These vaults will hold special tools, models, and samples which are vital to the business.

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In a letter published last week Col. John Jacob Astor, of New York, makes the following announcement: "All my patents on marine turbines having been granted I hereby dedicate them to the public, in the hope that the development of the ideal turbine may be hastened thereby. Col. Astor's patent contemplates twin screws set tandem instead of side by side, and revolving in opposite directions. No engines have yet been built to utilize the invention which ordinarily would have been protected for seventeen years.

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The employes of the Bigelow boiler works, New Haven, Conn., have refused to work hereafter on Friday because they consider it an unlucky day. Accidents had occurred in the works every Friday for many weeks.

## Important Conference of Founders and Union Molders.

Reference was made in these columns at the time to the National conference at Detroit, Oct. 8-11, between representatives of the National Founders' Association and the Iron Molders' Union. The association was represented by W. D. Sargent, president; A. C. Pessano, I. W. Frank, W. H. Pfahler and Commissioner John A. Penton. The union representatives were Joseph F. Valentine, president; M. P. Murphy, chairman, and by John Bradley, J. H. O'Neil, John Loder, W. A. Perrine and David Black, of the executive board. In addition there were present Trustees Lawrence O'Keefe, Alex. R. Mitchell and George M. Digel, of the Iron Molders' Union. Joseph F. Valentine was made chairman of the conference. The following report of the proceedings was prepared by David Black, editor, for the November issue of the *Iron Molders' Journal:*

On behalf of the N. F. A., Mr. Pessano outlined what, in the opinion of his associates, were bars to the harmonious progress of the two bodies. He urged that there were not enough skilled mechanics to supply the present demands of the foundries, and that therefore the union's restrictions as to the employment of apprentices were ill-advised and should be removed. He argued that if there were no restrictions whatsoever, the molders' position would in nowise be threatened, and that in the jobbing and machinery foundries, to which his entire argument was to be construed as applying, the fear of the employment of an excessive number of boys was groundless.

Mr. Pessano severely condemned those who sought to limit output, and cited instances of recent occurrence wherein men were said to have been fined and expelled by local unions of the I. M. U. for making jobs in less time than had previously been done. This, he contended, was wrong in principle, and could not be successfully defended or upheld by the union's representatives. He also held that opposition to the introduction of the piece price or premium systems was a wrong policy, and that the system under which work should be made should be determined by the employer, who was responsible for the conduct and success of the business.

Continuing, Mr. Pessano dwelt exhaustively upon the subject of differentials in wage rates. There was a decided difference, in his opinion, between the skill of the bench molder and the floor molder, and that disparity should legitimately and equitably be reflected in their wage rates. For economic reasons, needless to outline, the wage rate of a large city should in all fairness be greater than that which prevails in a small town. And finally the specializing process had made it possible for the foundryman to employ to advantage men of less skill than the average on low grade work. This fact should be recognized by the Iron Molders' Union and provision made whereby these men could be employed at a rate less than the standard rate.

Mr. Pessano referred briefly to the question of the operation of the molding machine, and gave it as his opinion that the chief objection of the foundrymen to the employment of molders as operators was based upon the fear that they would restrict the output of the machine and thus increase the cost of the product. He concluded his argument by making a strong plea for agreement upon the several points he had touched upon, and the formulation of a national wage agreement which would be of general application, and which would enable the two associations to avoid the difficulties and the friction resulting from the negotiation of local agreements, many of which embodied essentially different propositions.

A general discussion followed this statement, the union's representatives taking strongly opposing ground upon several of the propositions. They expressed pleasure that the representatives of the N. F. A. had determined to classify its membership, and that for the first time it was possible to deal specifically with the jobbing and machinery foundries included in the membership of the N. F. A. It was urged that the removal of all restrictions upon the employment of boys in the jobbing and machinery foundries

would pave the way for the gravest abuses and would accentuate the present scarcity of mechanics of the highest skill. This scarcity was in a large measure due to the policy of many foundrymen in employing boys for the profit that was in their work, and not to perfect them in the trade of their choice. It was held that instead of seeking the removal of all restrictions, the best interests of the foundry industry would be conserved by agreeing upon an equitable ratio of apprentices.

The union's representatives agreed that the arbitrary limitation of output was wrong in principle and contrary to the best thought in progressive and enlightened trade-unionism, but held firmly to their contention that arbitrary exactions on the part of the employer or his foreman were equally worthy of condemnation. The Iron Molders' Union would not defend those who would not give a fair return for the wages paid them and who sought to prescribe arbitrary limitations for themselves or others, but reserved the right to protect the health and comfort of its members against those who sought to exact a day's work which was unduly large. The difficulties in the way of determining where arbitrary limitation ceased and arbitrary exaction began were acknowledged, but assurances were given that the union's representatives would at all times co-operate in arriving at a just decision when a specific case was brought to their attention.

It was further contended that to the employer alone the sole right should not be given to determine the system under which work should be made, and attention was called to the fact that the piece price and premium systems, by appealing to the cupidity of the individual, had, in the past, resulted in a very material increase in the burden of the molder without commensurate advantage.

Differentials as between bench and floor molders in jobbing or machinery shops and the proposition that discrimination be made in favor of the smaller communities were declared by the union's representatives to be inequitable, especially the latter proposition, which was not in harmony with the best conceptions of present day competition. The proposition to give countenance to the employment of men upon low grade work in jobbing and machinery foundries was not viewed with favor, as a general proposition, by the conferees of the I. M. U., who felt that each case should be decided upon its own merits.

Briefly and in a general way this indicates the attitude of the two parties upon the several subjects figuring in the discussion. Each side apparently concurred in the thought that a general form of agreement adaptable as a ground work for all agreements ratified by members of the N. F. A. and I. M. U. would be most advantageous and facilitate the adjustment of all differences upon wage rates or conditions. The experiences of former conferences demonstrate very clearly that no form of agreement could be devised whose terms could be made to cover the general foundry industry as it was represented in the membership of the N. F. A., and by mutual consent of the parties to the Detroit conference, it was determined to confine these first efforts to the machinery and jobbing foundries only, leaving it to the future to formulate similar agreements for the other classes of foundries.

In order to place these thoughts upon record, a resolution was introduced by the representatives of the N. F. A., which, after being amended by the union's representatives, was adopted in the following form:

WHEREAS, It is the conviction of those who have given the subject of the relations of the employer and employe the greatest amount of study, that the most equitable way to adjust such questions as may arise to disturb said relations, is by the joint discussion of the issues involved by those directly interested or their representatives; and,

WHEREAS, It would further appear that when decisions have been arrived at that the interests of all parties are more effectually conserved by recording such adjustments in the form of agreements that define as far as may be possible the positions of all the interested parties; and,

WHEREAS, In the course of their relations the Iron Molders' Union and the National Founders' Association have entered into a number of said agreements, some of which are not similar in all of their terms; and,

WHEREAS, Said variations have not been productive of the best results, but have on the contrary promoted a feeling of uncertainty; and,

WHEREAS, There are a number of localities and many members of both organizations not at this time affected by any agreement whatever; therefore be it;

*Resolved*, That it is the opinion of this joint conference representing the Iron Molders' Union of North America and the National Founders' Association, that the time has arrived when in its judgment the purposes of the two bodies will be best promoted by the formulation of a general form of agreement, national in its character, for each class of foundries, and that as far as possible it should cover all the points arising in foundries of the class covered by said agreement, and be subject to such modification in detail as may be necessary to meet the needs and conditions prevailing in the districts into which the membership of the Iron Molders' Union and the National Founders' Association may properly be divided, all such modifications to be of general application in the district for which they have been formulated.

It was generally agreed that it would be inadvisable and perhaps impractical to attempt to designate a definite sum as the basic or standard wage rate for the entire country, the thought being that the territory covered might be subdivided into districts which could equitably be placed upon a common wage basis. The representatives of the N. F. A. argued that in order to carry out the general idea suggested in the resolution adopted, it would be necessary to come to an understanding as to the differentials which would be mutually recognized. They proposed that there be a differential between bench and floor molders in jobbing and machinery shops, and one between large cities and other points in the same district. They also contended that cognizance should be taken of the low grade work which was found in every foundry and provision made whereby it could be made by a cheaper grade of labor.

A very lengthy discussion took place upon the subject of differentials, the union's representatives, as has been said, taking strongly opposing grounds to their recognition in the class of foundries under immediate discussion. It became manifest that there was a lack of necessary data to enable the conferees to determine definitely how a proposition such as that presented by the association's representatives would work out, and as there was little immediate prospect of harmonizing the conflicting views as expressed, the effort had to be temporarily abandoned.

Following the program outlined in their opening remarks, the representatives of the N. F. A. presented these two resolutions:

WHEREAS, We recognize that any attempt to restrict the product of a foundry, or the earning capacity of a molder, by placing a limit upon either, is unfair both to the employer and employe, and should be discouraged and prevented; and,

WHEREAS, The principle and laws of the Iron Molders' Union are opposed to any such restriction, except in cases where they believe the molder is imposed upon;

*Therefore*, In order that their principle may be fairly understood by members of the union, the Executive Officers agree to promulgate such orders as will require that no local union can pass resolutions which shall directly or indirectly restrict the output in the foundry of a member of the N. F. A. unless such resolution shall have first been presented to and receive the approval of the Executive Board or officers of the Iron Molders' Union.

And:

WHEREAS, The rules of the Iron Molders' Union restricting the number of apprentices do not appear to be in harmony with the present conditions of business, and the establishment of a fixed ratio of apprentices to be employed (if such ratio should appear to be of mutual benefit to employer and employe alike), is impossible at this time because of the economic conditions involved; therefore be it,

*Resolved*, That in event of disputes arising upon this question between a member of the National Founders' Association and the Iron Molders' Union, it shall be the duty of the officers of the several associations to adjust such dispute in an equitable manner, based upon the conditions prevailing at the time in the locality in which the dispute occurs.

In discussing the first of these resolutions the union's representatives again expressed themselves as being opposed to all attempts at unfair or arbitrary limitation of output on the part of their local unions or members, their attitude upon that point being fairly well expressed in the preambles of the resolution presented. They expressed pleasure that the association's representatives had acknowledged in their resolution the right of the Iron

Molders' Union to protect its members against imposition on the part of the employer. It was stated that neither the laws of the Iron Molders' Union nor of any local thereof contained provisions relating directly or indirectly to a limitation of output, and furthermore the officers of the Iron Molders' Union had by precept and decision discouraged any attempt in that direction and would continue to do so, and would expect the officers of the N. F. A. to use their influence to discourage their members from making unjust demands upon the molders. While agreeing with the spirit of the resolution, the promulgation of orders as suggested in the resolution, would clearly be of little substantial good and of doubtful practicability. No action was taken on the resolution.

Reverting to the discussion of the resolution bearing upon the ratio of apprentices, the representatives of the union took the ground that the best interests of both parties would be conserved by mutual recognition of an equitable ratio of apprentices, and argued that that ratio should not be based upon the conditions now prevailing in the foundry industry, but upon a normal condition of trade. As a result of the decision of the Toronto convention, the union's representatives were not empowered to negotiate an agreement upon a ratio of apprentices other than one to every eight journeymen employed; but nevertheless they would be glad to receive from the representatives of the association any suggestion relative to the establishment of a ratio of appentices that will be satisfactory to their members. But without the recognition of a satisfactory apprentice ratio they felt they could not agree to the subject matter of the resolution itself.

The representatives of the union asked the attention of the conference to the subject of the nine-hour workday in the following resolution:

WHEREAS, It is conceded to be the purpose of the Nation Founders' Association and the Iron Molders' Union of North America to promote the interests and welfare of those identified with the foundry industry, and to cooperate not only in harmonizing their views upon subjects affecting wages and shop practices, but in assisting each other to advance along the lines of economic progress; and,

WHEREAS, It is generally accepted as a truth that the developments which take place in an industry should not only contribute to a reduction in the cost of the product, but also to an improvement in the condition of the worker and a lightening of his burden; and,

WHEREAS, We believe the general trend points to a reduction in the hours of labor as being one of the most desirable means by which this purpose can be attained; therefore be it

*Resolved*, That on and after Jan. 1, 1903, the members of the National Founders' Association will recognize nine hours of labor as constituting a day's work for their molders; and that in these localities where ten hours of labor is recognized as a day's work the reduction of one hour shall be accomplished without reduction in pay, that is to say that the molders will receive for nine hours' labor the same wage as they formerly received for ten hours; and further

*Resolved*, That out of consideration for this concession upon the part of the members of the National Founders' Association, the members of the Iron Molders' Union will co-operate with their employers in using all improved facilities or methods introduced with a view to reducing the labor cost, to the best advantage.

The association's representatives took the ground that until we could come to an understanding upon the terms of a general form of agreement covering the question of differentials and other essential points, it would be futile to discuss the nine-hour proposition. They intimated that they had a proposition to offer, affecting the hours of labor, but it was contingent upon agreement upon the points already discussed, and until such agreement was reached they must decline to consider the subject.

The representatives of the union strongly objected to the nine-hour day being made the subject of barter. It should be discussed upon its merits alone and had no relation whatever to differentials in wage rates or apprentice ratios. A reduction in the hours of labor was a logical result of the developments in the industries, and foundry workers, than whom there was none that worked harder, were justified in demanding a shorter work day. Further than to agree that any local demand for a nine-hour day would be given unprejudiced consideration, the representatives of the N. F. A. would go no further in the discussion of the shorter workday as a national issue.

The union's representatives then introduced the resolution affecting the New York Agreement, which had been presented at the New York conference last April, and upon which it was now expected the representatives of the association would be prepared to render a decision. It read as follows:

Inasmuch as there has been some misunderstanding on the part of the members of the National Founders' Association and the Iron Moldrs' Union of North America, affecting both the obligations assumed by each party under the terms of the New York agreement, and the status which shall be maintained, pending the application of the policy therein outlined, the following explanatory clauses shall be considered hereafter as part of said agreement, to govern the actions of the members of the parties thereto in their future relations:

(1) The New York Agreement provides as follows: "That in the event of a dispute arising between members of the respective organizations a reasonable effort shall be made by the parties directly at interest to effect a satisfactory adjustment of the difficulty." The words, "reasonable effort," herein appearing, contemplate negotiation upon the subject in dispute between the employer directly interested and the molders in his employ, or their representative or representatives, who shall make a serious effort to effect an adjustment. That, failing, however, the member of the National Founders' Association involved in the dispute should properly receive and treat with the president of the Iron Molders' Union of North America or his duly authorized representative with a view to making a further effort at adjustment before reference under the New York Agreement,

(2) When any change, whether of wage rate, shop practice or conditions, or any other change affecting the relations or the interests of the members of the parties to the New York Agreement is proposed by one of the parties thereto, to which objection or protest is raised by the other party, it is understood and agreed that the status originally existing, that is the status precedent to the proposed change, shall not be disturbed by either party pending reference and decision as provided in the New York Agreement.

To the great disappointment of the union's representatives the foundrymen declined to give an expression upon this resolution on the ground that the future relationship of the two associations was so intimately related to the formulation of a general agreement that no good results could be expected from discussions of such matters as those embodied in the resolutions presented until an understanding had been reached.

As the representatives of the union could not agree to the propositions of the other side affecting differentiations of wage rates and were not disposed at this time to submit a counter proposition along similar lines, it was apparent that no further progress could be made by the conference; but as there was evidently a disposition to get together upon the subject of a uniform agreement, a motion finally prevailed to adjourn the conference to such date, early in January, 1903, as might be agreed upon by the presidents of the two associations.

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Although the new plant of the Minneapolis Steel & Machinery Co., at Minneapolis, is not completed, the company has taken a number of contracts including the following: Structural steel for addition to glass block, Minneapolis, $40,000; structural work for the new government building at Salt Lake City, $40,000; annex to the Electric Steel Elevator Co. in Minneapolis, $40,000; government mint at Denver. The blacksmith shop, warehouse and pattern shop are completed. A mile of industrial railway is laid on which will be operated the 10-ton locomotive crane. The structural building will be in full operation by Dec. 1. The foundry will be ready by Dec. 15.

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The McIlvaine & Spiegel Boiler & Tank Co., of Cincinnati, has received a contract for boilers to be installed in the large saw mill which is being erected in Cuba by Maley, Thompson & Moffett, of the same city.

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It is reported that Reisenstein & Co., manufacturers of embossed steel tile, in Belgium, will establish a plant at Waltham, Mass. Under the present tariff the tiles cannot be profitably imported.

## CENTRAL AND EASTERN PENNSYLVANIA.

(Special Correspondence.)

HARRISBURG, Pa., Nov. 11.—The freight congestion and its attendant coal and coke famine have caused considerable trouble for the iron and steel companies of this part of the State and thousands of dollars have been lost through inability to finish contracts and the necessity of allowing business to pass. The large companies have been living from hand to mouth for weeks; but since the last week of October fuel affairs have been worse than ever in this part of the State. The Pennsylvania Steel Co. has had furnaces banked and last week its entire steel producing plant, several of the rolling mills and the bridge and construction department were shut down because of lack of coal. On Saturday three-quarters of the plant was idle because of fuel troubles. The Lackawanna, Susquehanna, Empire and other concerns have had troubles of a similar character and the smaller concerns have been almost compelled to suspend. Even companies like the Reading Iron and Thomas Iron have been having trouble to procure fuel in spite of location and interests.

Business for the winter will probably be great if the number of inquiries reported from the offices is anything to go by. Many orders are likely to be placed by Eastern companies and there is plenty of railroad work in sight. The Pennsylvania Railroad has given the Pennsylvania Steel Co. the Cambria Steel and other concerns large contracts for bridges, rails and other material and the Reading and Northern Central will soon place others. Newspapers state that 60 miles of new railroad will be built next spring to open up new coal, ore and lumber tracts and for renewals and extensions within Pennsylvania alone and this is being figured upon. Plate mills expect a great amount of business and the machinery makers and foundrymen of this part of the State look for abundance of work.

The Thomas Iron Co. will start several of its stacks this month, the fuel shortage being on a fair way to be overcome.

The settlement of the coal strike has brought about slightly better conditions in Scranton, Wilkesbarre, Pottsville and throughout the Lehigh, Schuylkill and Lebanon Valleys, but the Susquehanna Valley is suffering.

The Bethlehem Steel Co. was compelled to suspend operations at its puddle mill last week because of the scarcity of fuel. The steel works have been greatly handicapped by lack of coal.

The Harrisburg Manufacturing & Boiler Co. is filling a large order for pipe for Barcelona, Spain. This is the fourth large order filled by the company, as it made pipe for Australia, Peru, Mexico and California. It is also doing a large water tube boiler business.

The mills of the Central Iron & Steel Co. in this city made 69,500 tons of steel plates during the six months ending on November 1, breaking the company record and also establishing records for the universal and 126-inch mills, one of which made 27,000 tons and the other over 26,000 tons.

Improvements are contemplated at the Temple furnace near Reading.

Eastern Pennsylvania foundries are buying large amounts of German pig iron.

The Chesapeake Nail Works at Harrisburg have started after three weeks suspension because of fuel famine. This is the first suspension for this plant in months. It has been making considerable foreign work.

The Pennsylvania Railroad will double the capacity of its Juniata shops near Altoona and work will be started within a few months on extensive changes. The company will build many of its locomotives at that place. For the last three years these shops have been rushed to their capacity.

Leesport furnace will be started this month.

The Cambria Steel Co. will build a railroad spike mill at its Johnstown plant.

No. 2 Chickies furnace in Lancaster county will be started up within a short time. The new owners have made considerable alterations to the furnaces and they will be run regularly on large orders for Eastern concerns. The furnaces have been idle for several years, their last operators being C. R. Baird & Co.

The Lancaster Casting Co. will build a foundry to employ 200 men near Lancaster. Work will be started on the plant this winter and it will be in operation in the spring if all goes well. Several other industries are projected for this town.

The Empire Steel & Iron Co. will start its Reading furnaces very soon, probably this week, as they are being filled. The company's Topton and Macungie furnaces will be put into operation before many days go. These stacks depend upon anthracite coal and have been idle since the early summer when the stocks of anthracite could not be replenished.

The Duncannon Iron Co., which built a large mill some time ago at Duncannon, will start further improvements before long. The company's new puddle mill is one of the best equipped in this part of the State.

The Carlisle Chain Works were idle for repairs some time in October. Machinery from the Riverton plant of the Standard Chain Co. which controls the Carlisle and York works, is being sent to Carlisle. The Riverton plant was formerly operated by the South Harrisburg Chain Co.

A. B. H., Jr.

### New England Foundrymen's Association.

The November meeting of the New England Foundrymen's Association was appointed for Wednesday, Nov. 12, at 4 p. m., at the Hotel Essex, Boston. The foundrymen of Boston and points within 100 miles of that city make these meetings semi-social in character, the plan being to discuss topics of interest to the members, take dinner together and continue the discussions after dinner. The speaker for this week was E. H. Mumford, of the Tabor Mfg. Co., Philadelphia, and his subject, "The Molding Machine and Its Relation to Foundry Labor." For the December meeting, on Dec. 10, the speaker is James H. L. Coon, State insurance inspector, and the subject for discussion, "Insurance Inspection—Its Importance to the Manufacturer." Wm. J. Keep is to speak at the meeting of Jan. 14 on "Calculating Foundry Mixtures by Chemical Analysis and Regulating Foundry Mixtures by Mechanical Analysis." For the February meeting Dr. Richard Moldenke, secretary of the American Foundrymen's Association, is the speaker. At other meetings James A. Becket, of Hoosic Falls, N. Y., and J. A. Walker, of the Dixon Crucible Co., Jersey City, N. J., are announced.

In sending out the program of its fall and winter meetings the executive committee of the New England association has mailed a circular to a considerable number of nonmembers within easy reach of Boston and urged their attendance and their co-operation as members. The New England Foundrymen's Association is in live hands, having for its executive committee the following: John Magee, Magee Furnace Co., Chelsea, Mass.; Theodore Colvin, Colvin Foundry Co., Providence, R. I.; F. B. Farnsworth, McLagon Foundry Co., New Haven, Conn.; Wm. Doherty, Doherty Bros., Lowell, Mass.; Jas. F. Lanigan, Davis Foundry Co., Lawrence, Mass.

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The Wilmarth & Morman Co., of Grand Rapids, Mich., manufacturer of drill grinders, reports that its shipments in October were larger than for any month of the year.

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The butt weld department of the McKeesport plant of the National Tube Co., McKeesport, Pa., was shut down last week until the present accumulated stocks are moved.

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The Gorman Furnace & Mfg. Co., of Pittsburg, will receive a Pennsylvania charter on Nov. 15, to engage in the manufacture of furnaces and metal stamped goods. William Gorman, Charles Schwan, Nicholas Hartman, Joseph Kreuer, and Geo J. Schmidt are the incorporators.

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The Gurney Foundry Co., Toronto Junction, Ont., is making rapid progress with the erection of its foundry, the main building of which will be 710 feet in length.

## A NEW GRINDING MACHINE.

The Tucker Machine Co., of Cincinnati, has brought out a new grinding and polishing machine which will be known as No. 6. The tool is of substantial construction and pleasing design. The bearings are 7½ inches long and 1 5-8 inches in diameter, the column having a round base 18 inches diameter. The rests shown in the illustration can be removed in a moment's time when the machine is used for polishing. The tool is furnished with tight and loose pulley or countershaft as may be desired and the rests are also optional with the purchaser.

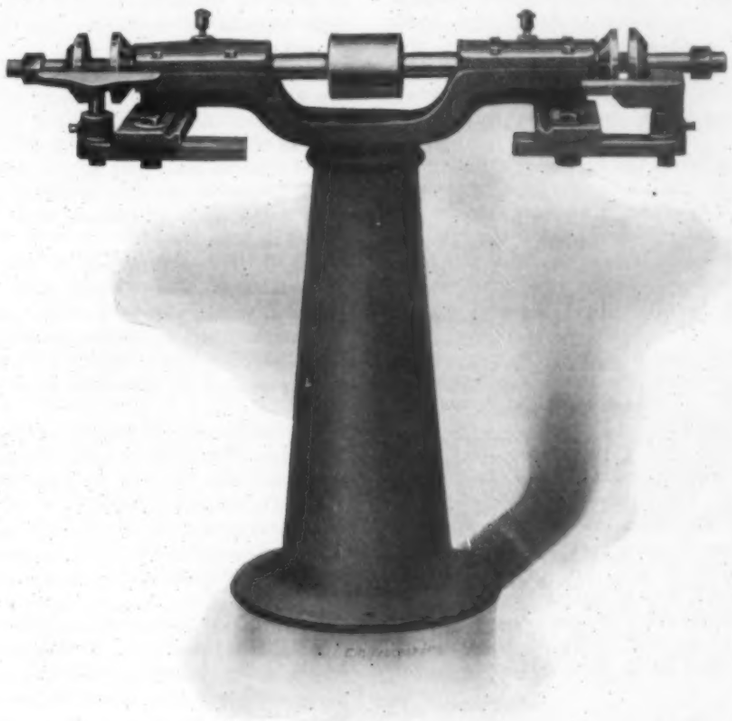
The main dimensions are as follows: Spindle, 1 5-8 inches diameter, 42 inches long and 1¼ inches between the flanges; height of machine, 34½ inches, weight, 230 pounds; pulleys, 4x4 inches.

# INDUSTRIAL SUMMARY.

[If you are in need of machinery of any description, please notify *The Iron Trade Review*, and we will put you in communication with our advertisers at once.]

**New Buyers in the Market and Some of their Wants:—**

The Syracuse Foundry Co., Syracuse, N. Y., recently organized, does not intend to build, but will occupy a building already erected. Its work will be generally light and the equipment will be of the best for that class of castings. The company expects to start melting by Jan. 1.



A NEW GRINDER.

The Cumberland Foundry & Machine Co., Cumberland, Md., has been incorporated with a capital stock of $5,000 by George F. Gephart, Frank C. Fleckenstein, Robert Roe, Jr., Thomas E. Roe and Lloyd Lowndes, Jr.

The Gulfport Foundry & Machine Works, Ltd., Gulfport, La., has been incorporated with a capital of $25,000.

A new company with a capital of $60,000 is being organized in Toledo, O., for the manufacture of the Fisher steam rotary pumps and other patented devices.

The Ohio Motor Co., Cleveland, capital $5,000, has been incorporated by Chas. A. Post, J. R. Post, May A. Post, R. H. Magoon, Geo. F. Russell.

The Miles-Murphy Co., Youngstown, capital $25,000, has been incorporated by Charles E. Miles, M. E. Murphy, Caleb B. Week, Henry K. Wick and H. E. Moore.

The National Steam Pump Co., Upper Sandusky, has been incorporated, capital $100,000, by L. C. Cole, R. J. Main, J. M. Main, T. D. Cole and W. R. Hare.

John Findlater, Jr., and J. R. Copeland, San Angelo, Texas, will build machine shop, wagon shop and vehicle emporium; also will probably build foundry at a cost of about $20,000.

Crescent Novelty Co., Chattanooga, Tenn., has been incorporated by W. T. Free, S. P. Stover, J. Dorland, F. J. Baer and J. P. Pemberton, to manufacture machines, tools, gas tips, burners, insulators, etc.; capital stock, $10,000. Company's building is completed, and all machinery has been contracted for.

The National Manufacturing Co., Chattanooga, Tenn., will need 50-horsepower engine and 60 to 70-horsepower boiler.

The Kilby Locomotive & Machine Works, Anniston, Ala., is in the market for 100 to 125-horsepower engine (Corliss or slide-valve) and 125 to 150-horsepower boiler.

The Big Valley Canal & Irrigation Co., W. H. Oglesby, vice president, Big Valley, Tex., will need two 100-horsepower boilers and 175-horsepower engine.

Bowen & Street, 600 Citizens' Bank building, Norfolk, Va., want car-wheel press, car-wheel boring machine, large locomotive lathe (to swing 62 inches), steam hammer and overhead traveling crane.

Eastern capitalists have interested themselves in the recapitalization and reorganization of the Structural Steel Car Co., of Canton, O., and it is probable that capital stock to the amount of $5,000,000 will be issued. Work on the plant has been stopped for some time, but with additional capital will be resumed on a much larger scale.

The Louisville Water Co., Louisville, Ky., will open bids Dec. 20 for supplying and erecting pumping engines, boilers or furnaces, etc., for 30,000,000 and 24,000,000 gallons capacity.

The Etowah Gold Mining Co., 606 Betz building, Philadelphia, Pa., is in the market for tanks, concentrators, crushers, water-wheels, electric generators, motors, portable engines, boilers, saw-mills, machine shop tools, etc.

W. D. Williams, Fredericksburg, Va., will need complete equipment for foundry and machine shop, also stock of supplies. A. G. Billingsley is manager.

The Anchor Mfg. Co., Lima, O., capital $20,000, has been incorporated by F. E. Bishop, L. W. Mowery, J. L. Weed, A. E. Mooney and C. H. Davis.

The Minnesota Harvester Co. was incorporated at St. Paul Nov. 6 with a capital of $6,000,000. It embraces American Grass Twine Co. interests and several Eastern capitalists. The incorporators are C. A. Severance, Robert E.

Olds and Charles W. Withee, who with F. B. Kellogg and Alfred T. Eisberg compose the board of directors. These are all St. Paul men. Vice President O'Shaughnessy, of the American Grass Twine Co., announced that the new company is independent of the combination of harvester companies.

The Rock City Machine Co. has been organized at Nashville, Tenn., and has opened a plant with the following officers in charge: Capt. T. M. Gallagher, president, and J. D. Stone general manager. The plant was formerly that of Thomas Gairns, a well-known machinist who has retired from business.

The Sharon Coal & Limestone Co., one of the constituent companies of the Sharon Steel Co., Sharon, Pa., has increased its capital from $200,000 to $300,000 for the purpose of making improvements at its mines and quarries.

The Youngstown Iron Sheet and Tube Co., of Youngstown, O., and Pickands, Mather & Co., of Cleveland, O., have jointly purchased 12,000 acres of coal land about 12 miles from Morgantown, W. Va. The property will be opened up immediately and a large number of coke ovens are to be erected.

The Warren Sheet Metal Co., of Warren, O., has been incorporated with $50,000 capital by W. C. Winfield, C. B. Selby, Clarence Crane and William Wallace, of Warren, and C. O. Hart, of Chicago, Ill. The company will erect a large stamping plant for the manufacture of coal hods, galvanized water pails, wash tubs, sprinkling cans, etc. Plans are now under preparation.

W. L. Wallis, of Sharon, Pa., is promoting a company for the purpose of erecting a blast furnace and rolling mill at Sharon.

John T. Graham has acquired the Fairhaven Foundry at Fairhaven, Wash., and will place it in operation as soon as the necessary repairs can be made. The plant is to be enlarged also and considerable equipment will be purchased.

The Logemann Brothers Co., Milwaukee, Wis., has been incorporated with $50,000 capital for the purpose of dealing in machinery. A. C., R. J. and E. H. Logemann are the incorporators.

The Hecla Iron Works Co., Chicago, has been incorporated with $50,000 capital for the purpose of engaging in the foundry trade. F. B. Johnston, E. D. Frazer and T. G. Vent are the incorporators.

The Bessemer Iron Ore Co., of Blacksburg, S. C., has been incorporated with $500,000 capital under the laws of the State of New Jersey. The company will develop iron ore properties in South Carolina. W. J. Linstead, J. J. Moran and J. H. Hall are the incorporators.

The Potts Creek Mining & Mfg. Co., of Parkersburg, W. Va., has been organized with $1,500,000 capital for the purpose of developing 50,000 acres of iron ore property in the vicinity of Clifton Forge, Va. John H. Holt, W. A. MacCorkle, J. Harmon, and D. B. Paxton are the incorporators.

The Wyoming Valley Machinery Co., of Scranton, Pa., has been organized by J. F. Roberts and P. J. O'Malley for the purpose of dealing in machinery and mill supplies.

The Blaisdell Screen Plate Co. has been incorporated in Maine with $100,000 capital for the purpose of engaging in the manufacture of screen plates for paper and pulp mills. Plants for the manufacture of the plates will be located at Oakland, Me., and at Watertown, N. Y. The company is capitalized at $100,000. The following organization has been perfected: J. Marrian, president; J. S. Bretz, vice president; J. H. Blaisdell, secretary and general manager and S. H. Wetmore, treasurer.

The Locomotive & Machine Co., of Montreal, Can., has been organized with $1,000,000 capital for the purpose of erecting a plant to manufacture locomotives. The charter also permits the company to engage in structural steel fitting and a general foundry and machine shop will also be operated. M. J. Haney, J. T. Davis, M. Connolly, G. B. Brophy and Roger Miller are the incorporators.

The Gulfport Foundry & Machine Works, Ltd., has been organized at Gulfport, Miss., for the purpose of operating and erecting a foundry and machine shop. The capital stock issued amounts to $25,000.

**Fires and Accidents:—**

The Central City Foundry, located at Huntington, W. Va., was destroyed by fire this week, entailing a loss of $15,000.

Carr Bros., foundry and machine shop, Parkersburg, W. Va., was partially destroyed by fire last week, entailing a loss of $8,000.

The White & Son stove foundry, Memphis, Tenn., was destroyed by fire last week, entailing a loss of $10,000.

The plant of the Keystone Driller Co., at Beaver Falls, Pa., was almost totally destroyed by fire Nov. 9. Loss, $100,000; insurance, $55,000. The parts destroyed are the blacksmith shop, the machine, erecting and pattern departments. Much valuable machinery was ruined. The origin of the fire is a mystery.

Fire in the Architectural Iron Works of Floss, May & Co., Brooklyn, Nov. 7, caused a damage of $2,000; covered by insurance.

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**New Construction:**

The Pullman Ventilator Co., York, Pa., will double the size of its plant by the erection of a three-story addition. A 60-h. p. boiler and engine will be installed and considerable new machinery will be purchased.

The Victor Safe & Lock Co., Cincinnati, O., will enlarge its plant by the erection of a large six-story addition. A large amount of machinery and equipment will be purchased.

The Pullman Co., will erect a car shop 100x300 feet and a dry kiln 500x27 feet at Calumet, Ill.

The American Metal Wheel & Toy Co., Toledo, O., has decided to increase the size of its plant and several additional riveting machines will be added.

The Burns Boiler Co., of Green Bay, Wis., will erect a large boiler plant at Depere, Wis. The company is capitalized at $100,000.

The Hockensmith Wheel & Mine Car Co., Irwin, Pa., will double the size of its plant by the erection of several buildings to be used for erecting purposes. The company was recently incorporated with $100,000 capital.

The Manufacturers' Foundry Co., Waterbury, Conn., has plans prepared for the erection of a large foundry 80x260 feet.

The McIlvaine & Spiegel Boiler Co., Cincinnati, will erect an addition to its plant 80x300 feet.

The machine shop of the Lake Shore railroad at Collinwood, O., has been finished. Over 400 men are now employed. The foundations for five more of the large buildings are in, but work on the superstructure has been delayed, owing to the non-arrival of steel. In all 32 buildings will be erected by the Lake Shore company at Collinwood, and it will take two or three years to complete them.

W. J. Hilands and A. D. Plamondon, president and secretary of the Kentucky Iron Co., announce that the company will begin next spring the erection of a steel plant at Paducah, Ky., where it owns a blast furnace.

The J. E. Porter Co., Ottawa, Ill., will rebuild its foundry which was destroyed by fire Oct. 17. Fire losses have not been adjusted and the size of the new buildings has not been determined. The main factory was not destroyed and the company has been able to continue filling orders.

Permits have been issued by the Philadelphia building department for the erection of two large shops for the Baldwin Locomotive Works, to cost $320,000.

The Russell & Erwin Mfg. Co., of New Britain, Conn., has placed the contract with B. H. Hibbard for the erection of a new manufacturing building to be 50 feet by 200 feet and seven stories. The construction will be fire proof throughout and the floors will have a capacity of 250 pounds per square foot, so that the building can be used for carrying all classes of manufactured goods. It is expected that the building will be completed about Feb. 1.

P. & F. Corbin, of New Britain, Conn., are making extensive changes in their plant, in order to increase output. They have just completed a large seven-story, fire-proof building to be used for general manufacturing purposes, and are now at work on a new foundry building to be 60 by 600 feet, located on their property at the "Annex" ad-

jacent to the tracks of the New York, New Haven & Hartford Railroad. It is expected that the building will be ready for occupancy by Jan. 1. These improvements will necessitate the employment of 100 additional iron molders, 70 brass molders and 500 extra men in general manufacturing.

The contract for the rebuilding of the plant of the Portland Iron & Steel Co., Portland, Me., recently destroyed by fire, has been let to the Berlin Bridge Co., which will erect a permanent, all-iron structure.

Negotiations are nearly completed for the purchase of the Davis & Cowgill iron works, Omaha, Neb., and for the making of large additions to the plant.

The Locomotive & Machine Co., Montreal, Canada, has obtained an option on a large tract of land and will soon be prepared to proceed with the erection of its plant.

The new plant of the Titusville Iron Co. being erected at Titusville, Pa., is 200x420 feet, contains 760 tons of structural steel, 11,750 feet of glass in the windows and will require 800,000 brick to inclose it. The plant will be equipped with hydraulic riveters, 20 and 15 ton electric cranes and boilers aggregating 300 horsepower, supplemented by six gas engines. The company recently increased its capital stock from $250,000 to $500,000.

N. B. West, of Cando, N. D., will establish a machine shop at Devil's Lake, N. D. He will soon commence building.

The Scully Ventilator Co., Detroit, have had plans prepared for a new foundry.

The plant of White & Co., stove manufacturers, Memphis, Tenn., recently burned, will be rebuilt and the capacity increased.

The incorporators of the newly organized Royal Stove & Range Co., Greenville, O., are: Jno. H. Martin, Geo. W. Mannix, Jr., and Jno. R. Martin, of Greenville, O., and Geo. B. Jones and J. W. Baker, of Kokomo, Ind. Capital stock, $50,000, all paid in cash. The company is building a new plant with foundry 76x121 feet with cupola room 24x24 feet, mill room 25x30 feet, engine and boiler house 40x40 feet, main building 86x130 feet; three stories. All buildings will be of stone and brick and all machinery of latest design. The plant will be equipped with electrical power throughout. It is the intention to make three grades of ranges in various styles of medium and high class. Also a line of steel cooks and oak hot blast heaters. The company expects to have the plant in operation about April 1, 1903. Competent men have been engaged for heads of departments. George B. Jones will be general superintendent and J. W. Baker will have charge of the financial department.

A new machine shop is being built for the Fall River Iron Works Co., Fall River, Mass.

Isaac A. Sheppard & Co., Baltimore, have awarded contract for erection of stove foundry addition one story high, 61x85 feet, to cost $10,250.

The W. P. Horner Wagon Mfg. Co., Danville, Va., will enlarge its wagon works, capital having been increased recently from $25,000 to $100,000 for this purpose.

A new annealing department is being added to the plant of the American Sheet Steel Co. at Cambridge, O., and the galvanizing department is being enlarged.

The new machine shop of the Southern Engine & Boiler Works at Jackson, Tenn., will be finished and equipped by December 1.

The new plant to be erected at Nashville, Tenn., by the Nashville Bridge & Construction Co., will consist of two new buildings, 70x140 feet. The equipment has been purchased.

Ground has been broken for the erection of the $30,000 plant of the Wright Taper Roller Bearing Co. at Buffalo. The company was formed with a capital stock of $900,000, and it plans to operate on a very large scale. About 125 men will be employed at the start. The inventor, W. Hamilton Wright, will be superintendent.

The Bucyrus Co., of South Milwaukee, Wis., is preparing to increase its foundry output. The company has let the contract for a steel and brick addition of 30 by 80 feet to its foundry space. In the spring it will widen the entire molding room 40 feet. The addition now going up will cost $30,000.

The Vance Boiler Co., Geneva, N. Y., will build an addition to its plant.

An addition is being erected and other improvements made to its foundry at Salem, O., by the Deming Co.

The Twin City Rapid Transit Co. has purchased a 22-acre tract in St. Paul for $21,676 and will expend $500,000 in building and equipping its new plant for building and repairing cars.

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**The Pittsburg District:—**

The site of the Walker works of the American Bridge Co. at Hays Station has been sold for $112,000 and as soon as the company's new plant at Economy, Pa., nears completion the Walker plant will be dismantled and a large portion of the machinery will be removed to it. The Walker plant has a monthly output of about 2,000 tons, but the Economy works where the operations of the American Bridge Co. will be centralized will have a monthly output of 25,000 tons. As the new plant under erection is on the outskirts of Economy a new industrial community will be created to be known as "Ambridge" an abbreviation of the name of the American Bridge Co. In the course of a month the bridge company will have its new shops designed for the working of I beams as are required on the new bridges of the Wabash railroad over the Monongahela and Ohio rivers. All the remainder of the material is ready to be delivered.

The Electric Controller & Supply Co., of Cleveland, has opened a branch office in room 401, People's Bank Bldg, with John S. McKee in charge. The office of the Cleveland Pneumatic Tool Co. has been removed from the Park Bldg. to the same office with E. J. Earl in charge.

The Oil Well Supply Co., of Pittsburg, will soon have its large new plant at Oil City, Pa., completed. The cost of the plant approximates $1,000,000 and the buildings occupy a large portion of 45 acres purchased for the location of the plant.

C. L. Hastings has been appointed Pittsburg representative of the Bethlehem Steel Co., South Bethlehem, Pa., with offices in the Keystone Bank Bldg.

To make room for additional improvements at the Edgar Thomson plant of the Carnegie Steel Co., Braddock, Pa., Braddock Ave., a thoroughfare into the company's properties is to be diverted 400 yards north of its present location.

The Bindley Hardware Co. will erect a four-story warehouse, with a total floor space of 360,000 square feet, to be used to store heavy hardware. The building will cost approximately $200,000.

The Pressed Steel Car Co. has commenced suit against the American Car & Foundry Co. to restrain the latter from using patents it controls in the manufacture of pressed steel cars.

A building permit was granted to the Pittsburg Railways Co. last week for the erection of a large power plant on Brunot's Island at a cost of $100,000. All the equipment has already been purchased.

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**General Industrial Notes:—**

The National Machinery Co., of Tiffin, O., has just completed an order for 300 wire nail machines for the Colorado Fuel & Iron Co. Other orders amounting to over 250 machines have been filled, and the company speaks of the prospects as well as year's business in the wire nail machine trade as highly gratifying.

Wm. H. Staake, trustee, announces the public sale on Thursday, Nov. 20, of two tracts of land in Catasauqua, Pa., belonging to the estate of Chester R. Baird, trading as C. R. Baird & Co. These two tracts contain 25,612.5 and 31,250 square feet respectively and were reserved from a conveyance made by Chester R. Baird to the Catasauqua Rolling Mill Co. Dec. 7, 1899.

The Bay State Stamping Co., Worcester, Mass., has purchased the Calvin Hartshorn factory. As soon as alterations are made in the plant, the company will move into its new quarters. The business of the company is stamp-

ing and forming sheet metal of all kinds and nickel plating.

The National Malleable Castings Co. has added to its recent purchase of property of the former Grant Locomotive Works, Chicago, by acquiring a tract of 629x633 feet, which adjoins the first purchase and gives the company a continuous tract of 38 acres.

The Allis-Chalmers Co. has opened a branch office in Seattle, Wash., with H. S. Mitchell in charge.

The Reading Railway Co.'s new locomotive shops at Reading, Pa., which have been built at a cost of nearly $1,000,000, are almost completed.

The newly incorporated Bristol Motor Car Co., Bristol, Conn., has rented a building and commenced manufacturing.

The Auburn Foundry Co., Auburn, Maine, has made an assignment. The company was organized about twenty years ago.

A new blast furnace is to be blown in at the Pueblo plant, by the Colorado Fuel & Iron Co. this month. This is the second of the large furnaces of the company, and it is expected to blow in a third next spring. There will then be five furnaces in operation, and it is estimated that they will be able to produce between 550,000 and 600,000 tons of iron in a year.

Henry and Louis J. Buhler, doing business as M. Buhler's Sons, iron founders, New York, have filed a petition in bankruptcy. Liabilities, $7,007; assets, $2,916.

Dover furnace in Stewart county, Tenn., which has been out of blast since 1874, has been rebuilt and will be blown in about January 1 by the Dover Iron Co.

The blast furnace of the Manistique Iron Co., at Manistique, Mich., has been blown in after being out of blast for two months, during which time the stack was relined and other improvements made.

The Republic Iron & Steel Co. has closed its north rolling mill at Terre Haute, Ind., for an indefinite period. The south mill in the same city will be put on triple turn.

The Nevada Foundry at Reno, Nev., and the Fulton Foundry at Virginia, Nev., will be consolidated. Additional buildings will be erected and new equipment installed.

The nickel steel plates to be used in building the new cup defender will be furnished by the Lukens Iron & Steel Co., Coatesville, Pa., which has made the plates for four cup defenders and for "Independence," Thos. W. Lawson's ill-fated yacht.

The Lackawanna Steel Co. has taken possession of the plant of the Lake Erie Engineering Works, Buffalo, purchased some time ago. Richard Hammond, president of the Lake Erie Engineering Works, will be manager of this branch of the steel company's business. Nothing will be made to sell, but all the tools and equipment for the steel company's plant will be made here.

The officers of the Pacific Tin Plate Co., recently formed by tin plate workers of Gas City, Ind., for the purpose of erecting a plant at Los Angeles, Cal., are as follows: President, Joseph Beaver, of Gas City; vice presidents, George Bluett and Benjamin Clark, of Gas City; secretary, Frank J. Coppock, of Jonesboro; treasurer, James Elton, of Gas City.

The Weimer Machine Works Co., of Lebanon, Pa., have received the contract to supply the hot blast, cold blast and burner valves for the six hot blast stoves for the Sheffield Coal & Iron Co., Sheffield, Ala. F. C. Roberts & Co., of Philadelphia, are the engineers in charge of the work. The Shenango Furnace Co. has placed an order for a 50x90x60-inch blowing engine to be delivered next year. The first engine for the LaBelle Iron Works Co., at Steubenville, O., is being installed. It is 42x84x60 inches. The second will be installed in December. The Globe Iron Co., of Jackson, O., has ordered a second engine, 42x84x60 inches, to be installed early next year.

The Atlantic plant of the Republic Iron & Steel Co., New Castle, Pa., was shut down last week for an indefinite period owing to the shortage of iron. The Etna furnace which supplied this mill with iron was compelled to bank early last week owing to the shortage of coke and until the furnace resumes the mill will not be able to operate.

The Bethlehem Steel Co., South Bethlehem, Pa., recently cast a bed plate for a large 15,000-ton armor plate press which weighed in the rough 300,000 pounds and which will weigh in the finished state about 265,000 pounds. A mate to this casting will be cast shortly.

The newly organized Brass & Iron Works, Reading, Pa., has organized with the following officers: John G. Mohn, president; Dr. W. A. Rigg, vice president; W. H. Mohn, secretary; W. W. Light, treasurer, and K. A. Fichtborn, assistant treasurer. L. E. Fichtborn will be general manager. The above officials constitute the board of directors.

The directors of Wm. Cramp & Sons, Philadelphia, have decided to postpone payment of the next quarterly dividend. No action is to be taken for three months on the proposition which provides for $5,500,000 of 5 percent bonds. The suspension of the dividend does not signify that this great establishment is not earning money. The orders for the past year amounted to more than $24,000,000 and the gross earnings exceeded $8,200,000.

The Woods-Harris Iron & Supply Co., of Memphis, Tenn., has opened a large warehouse at 85 to 97 Jefferson St. and will do a large jobbing trade in merchantable iron and steel products such as iron and steel bars, iron and steel sheets, tin plate and a line of mill supplies will also be carried. Robert L. Woods is president; E. A. Harris, vicepresident; F. Fentress, Jr., secretary, and Boyd H. Thomson, treasurer.

Work on the erection of the new mixer plant of the Tennessee Coal, Iron & Railroad Co., at Ensley, Ala., is progressing rapidly. The foundation of the plant is already in and the structural work is already under way.

The syndicate which purchased the North Alabama furnaces from the Tennessee Coal, Iron & Railroad Co. has been organized under the corporate name of the Sheffield Coal & Iron Co. Two furnaces located at Sheffield, Ala., have been purchased and after extensive repairs have been made, they will be blown in shortly after the first of the year. In addition to these furnaces the company has acquired the West Point ore lands at Russellville, Ala., and 6,500 acres of coal land near Stenage, Va. Rogers, Brown & Co. will sell the output of the furnaces.

The work of erecting the new furnace plant of Pickands, Mather & Co., of Cleveland, O., at Toledo, O., is progressing rapidly. The shell of the stack is already up and the stoves are nearing completion.

The Shirley Radiator & Foundry Co., Shirley, Ind., is completing its new plant and the first cast will be made in the foundry shortly. The main building is 75x250 feet and the warehouse 60x150 feet. The company will manufacture hot water and steam radiators and will also cast light and heavy gray iron castings for the general trade.

The molders in the employ of Terrault & Rorne, iron founders, Quebec, Can., have gone on a strike to enforce a demand for an increase in wages to $2.25 a day.

The Osborn Engineering Co., of Cleveland, has been retained as consulting engineer for the design of the cement works the Struthers Furnace Co. is to build at Struthers, O.

The La Follette Coal, Iron & Railway Co., of La Follette, Tenn., is erecting 200 coke ovens which will be ready Jan. 1, 1903. This will make 550 ovens in all. The company will also double its furnace capacity.

The Dayton Coal & Iron Co., Cincinnati, has removed its offices from the Johnston Bldg. to the First National Bank Bldg., at Third and Walnut Sts.

The Patthoff & Frey Iron Co., Cincinnati, has removed its office from 208-212 Lawrence St. to the northeast corner of Front and Lawrence Sts. to give additional working space.

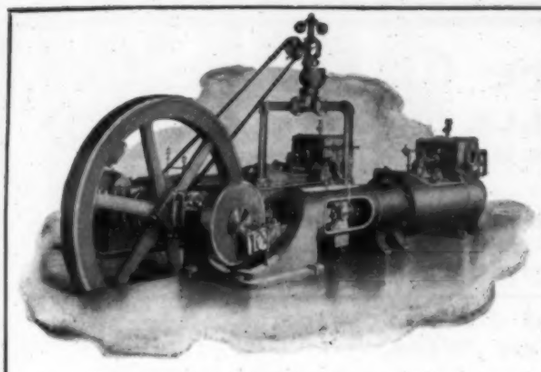
The Dover Furnace, in Stewart County, Tenn., which has been idle since 1874, has been completely remodeled and will be blown in about Jan. 1, by the Dover Iron Co., which also operates the Bear Spring Furnace. The officials of the company advise us that the greater portion of the output of 1903 has already been sold to chilled roll foundries.

The Sloss-Sheffield Steel & Iron Co.'s No. 4 furnace at North Birmingham, Ala., which had been undergoing repairs since Oct. 15, was lighted Nov. 1. With all of the furnaces running this company will probably make 400,000 tons within the next 12 months.

## Regarding Purification

A FIRST-CLASS feed-water heater must be a purifier, too—it must take out of the water such impurities as can be precipitated at the temperature of the exhaust steam. But this purification must not be at the expense of the heating qualities of the heater, or it soon ceases to be a good heater. That is one disadvantage to be found in most heaters. What little purification is obtained in them is more than offset by a corresponding deterioration in their heating capacity. But a **Cochrane Feed-Water Heater and Purifier** not only at all times gives to the water the highest temperature obtainable under the conditions, but also materially purifies the water by precipitation, deposit, filtration and flotation, and by adding to the water the exhaust condensed in the heater, which usually amounts to about one-seventh of the total feed supply required. *Send for Catalogue 11-H.*

**HARRISON SAFETY BOILER WORKS,**
**Clearfield and 17th Sts., PHILADELPHIA, PA.**
Manufacturers of Cochrane Separators.



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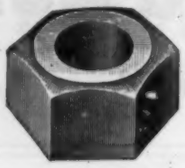

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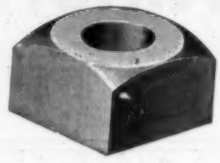

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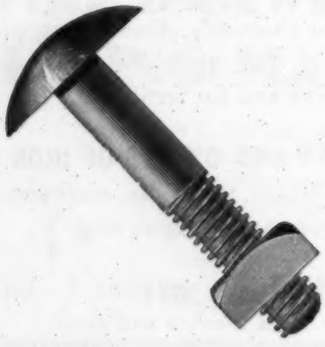

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## Something Different.

Every page in our paper must be wide-awake. We wont carry any "dead wood" if we can help it. Speaking of dead things, we believe that the average "buyers'" or "classified index," as they appear issue after issue in many publications, should long ago have been carefully embalmed and put on a high shelf. We "laid away" our old one last week, and in this issue we present an *entirely new form* of classifying our advertisers' products.

In this new index we have endeavored to call things by their right names. We have made it an index for busy men, and we trust that our readers will avail themselves of this handy form of reference.


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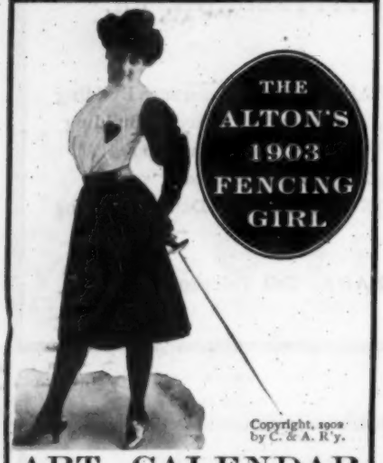

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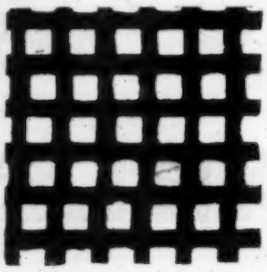
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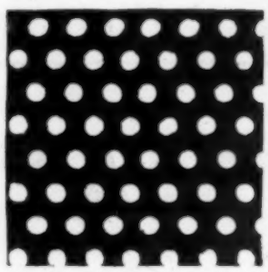
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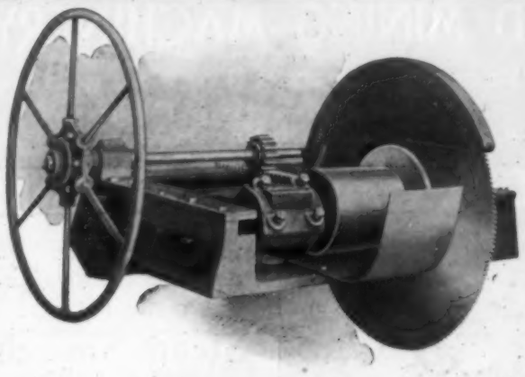

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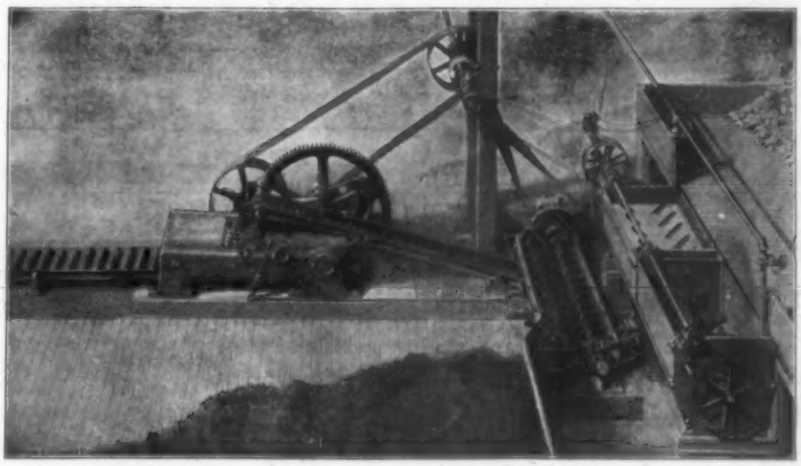

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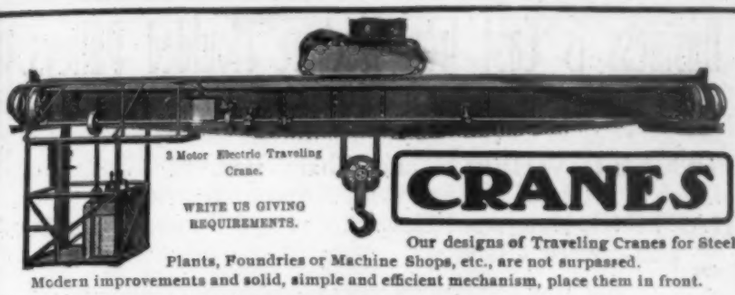


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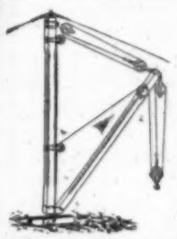

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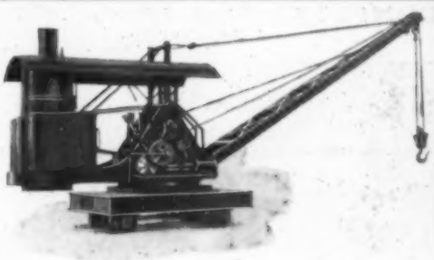

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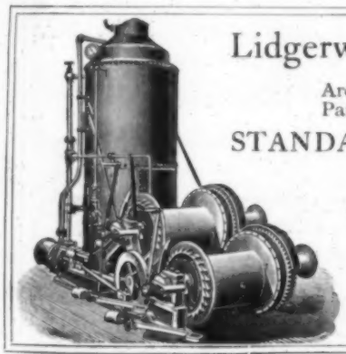

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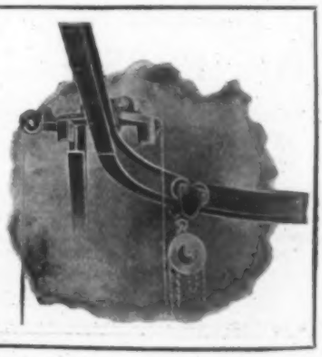

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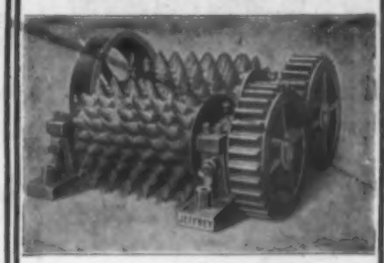

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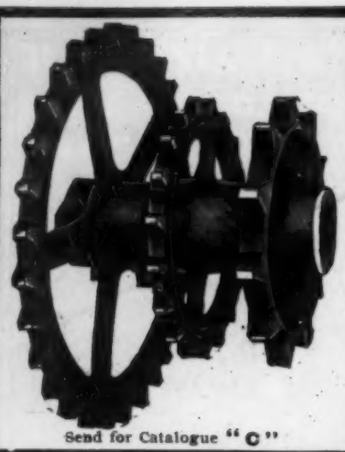

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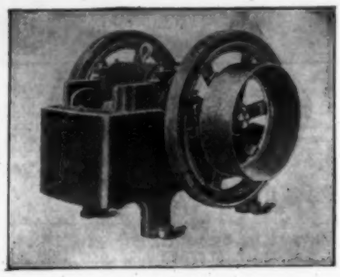

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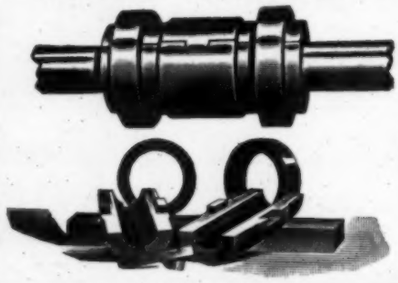

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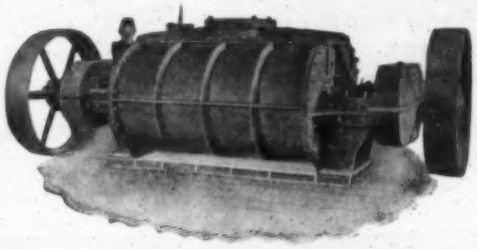

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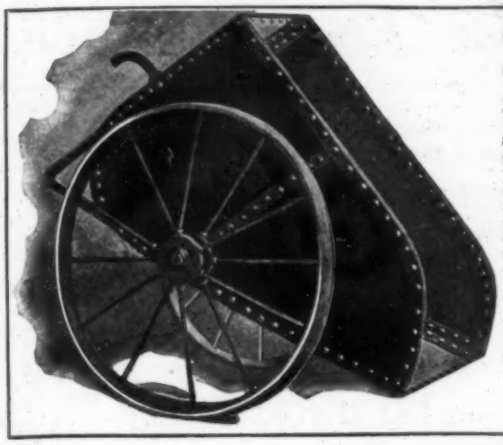

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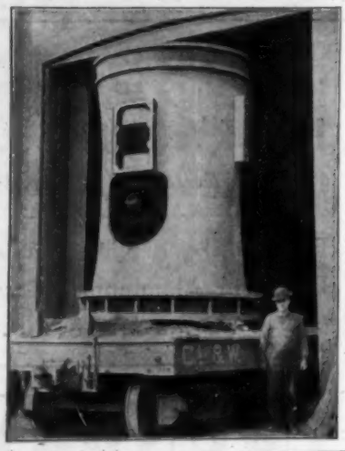

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